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Merchant Marine Plans Lack Unity

Promotion of America's Maritime Strength Suffers from Absence of Concrete Policy—Congress and People Need Guidance in Definite Channels

OUT of the welter of war's destruction, a few fundamental and constructive truths are emerging. Those of an international character, such as the President of the United States has initiated or adopted, are now before the chosen representatives of the victorious allies at Paris. Those of a national character, in many cases, press for a solution which delay will not only retard but will probably vitiate. Those of an economic character are less clearly appreciated at the present time, owing to their more intimate contact with the everyday life of so many millions of individuals. Their ultimate recognition is inevitable.

The distinction between the three factors enumerated is more suggested than actual. An illustration—one which is of peculiarly vital importance at this time to everyone but particularly to those interested in marine affairs—will demonstrate this fact.

Two Kinds of Freedom

President Wilson gave second place in his famous schedule of fourteen points to the question of "freedom of the seas." The importance with which the question is viewed on the other side of the Atlantic as well, is shown by the reservations made in the English and French acceptances of Germany's armistice agreement. The gravity which England in particular attaches to this question is outlined in an article in this issue, prepared after personal investigation on the ground.

In the popular, even though in this case misinformed, mind the question of "freedom of the seas" is allied with a nation's strength or weakness as a commercial factor on the oceans. This belief as a stimulus to discussion is a healthy sign for the United States where merchant marine legislation has been blocked by the lack of interest of the great mass of citizens.

Shipping stands today in bolder relief than at any other time in history. The war's lesson of the vitalness of shipping is as fresh as ever. Each nation is proceeding along its own lines to capitalize that lesson. Whether the lines which America is following are conducive to placing this nation in the van of maritime powers is highly doubtful.

Nationally the nation needs a strong and powerful merchant marine. Economically, the necessity is just as real. Politically the prospect for attaining this position is far from bright. The nation's great reservoir of economic strength and power has promoted an optimistic belief in the future that frequently robs present-day details of their significance. And in building a permanent marine policy, today's problems in America require decisive action. A policy of nitchevo will bring disappointment and probably disaster.

The Need for a Constructive Policy

The problem of America's future on the seas revolves, in its immediate sense, around the need for a constructive and widely supported policy. In fact, several distinct but definite policies, if generally understood, would through discussion and compromise lead the nation further than the present position of uncertainty. Public interest will soon lapse unless it is held by the stimulating influence of definite plans. The truth of this is evidenced by the interviews, given in this issue, with the congressional leaders of the two great parties. Each is convinced that a merchant marine must be encouraged and promoted but has no settled convictions as to the best method. Business men in their own and the nation's interest should have ready a solution which is widely and heartily supported rather than awaiting the action of others whose knowledge is less.

The above discussion is not intended to expound such a solution but to urge the need of a widely supported and actively advocated policy. Marshal Foch has taught the wisdom of unity of command. Americans interested in the great question of a merchant marine have the opportunity of teaching the wisdom of unity of purpose and action.

World Charter Market Reviewed by

SHIPS SCARCE

American lines to contract for new vessels—Combinations among ship companies are under discussion

MARITIME conditions continue to improve, thanks to the foreign nations in releasing ships. American vessels are nearly as scarce today as a month ago, although some relief is anticipated early in the year. In December the British released 10 per cent to commercial trades, and 20 per cent more on the first of the year. Many optimistic promises were made from Washington, but those promises cannot be said to have resulted in any improvement that would warrant comfort to American shippers. Our government has released shipping, but of such a class as to keep American freights at a disadvantage. It has consisted largely of vessels which have been used in the New England coal trade, small steel vessels built on the Great Lakes and new merchant tonnage produced for the Fleet corporation.

Some shipping men are not anxious to operate certain of these new boats because they insist that the vessels have not been properly built. One shipping man pointed out that one of the prize speed vessels has spent more time tied up for repairs than in trade. She is declared to be typical of much of the new steel tonnage which is being turned over to commercial uses.

Most of the tonnage released by Washington consists of foreign vessels which have been operated under charter. Foreign vessels, consequently, are chiefly responsible for the easing up in the shipping world. Even the enemy merchant ships, which include some 2,500,000 tons of German vessels interned at ports throughout the world, will be operated by the allied maritime council until ultimately disposed of by the terms of peace. These vessels will fly the flag of the council, a new insignia on the high seas. Approximately 500,000 tons of Austrian ships will carry Italian crews.

Private Ownership Favored

Practically every passenger boat under the American flag and some freighters capable of being converted into transports will be used by the American government to bring back troops. For this reason, the American merchant marine will be destitute of the so-called combination ship. Commercial travel on American boats will be almost an impossibility for several months. Some of the leading shipping men in the United States have not been slow to take account of the situation. Several private conferences have been held and within a few weeks, it is expected, definite recommendations will be made to Washington as to the best method of conducting the merchant marine in the future. On two points they all agree. The merchant marine must be developed under private ownership and operation and makeshift design and construction must cease, to be replaced with ships of better finish and more modern plan.

Such improvements in design, construction and operation of ships as will be necessary to keep the American merchant marine upon a footing with foreign competition cannot reach its fullest development under present organizations. Combinations of interests must be expected. Rumors of such combinations in the American field are already being heard in the street. Fruition of these plans will be seen when the government's control begins to relax more.

Already some American lines are contemplating letting contracts for new ships. These vessels are to replace those lost in the war. War losses have been covered by the setting aside of funds which must be invested in new vessels before the year is out so that the funds may not be counted as income and subjected to the heavy federal tax. Foreign shipping interests, on the other hand, are attempting to let contracts with American yards for new vessels because their trade demands the tonnage. Belgian and French interests want ships.

Freight Rates Advance

American lines are beginning to realize that the release of all shipping from the war control will not fill the demands. This but accentuates the slight relief which has been had in the foreign trade movement from the few vessels already turned back to their owners. The coastwise ships were the first released, but those vessels owned by the railroads are still subjected to the control of the railroad administration. In the coastwise trade, therefore, the government controls the rates which are extremely low in comparison with conditions generally. Charters for overseas are just as high and as difficult to consummate. Freight rates have advanced, despite the somewhat increased amount of tonnage space offered. The shipment of apples to England was one of the features of the past month, although it must be confessed that the price of the fruit will be high after the freight has

Release Ships

TANKERS and small steamers not over 4000 tons deadweight are being released to commercial trades, "with the exception of certain vessels required for military purposes." Each vessel is released on its next arrival at a United States port. The operation of such released vessels continues to be subject to control of rates and approved trades, the shipping board retaining the right to requisition the vessels anew if military or other reasons should render that course desirable.

The vessels to be released number 44 of approximately 139,752 deadweight tons. The trades involved are Central American, West Indian and coastwise

been paid, and it is a question whether the British people wish so much to eat American apples as to be willing to stand for the price.

More than 100,000 tons of freight are said to be waiting in storage at the port of New York alone, intended for the east coast of South America. A similar condition of congestion is understood to exist at all the Atlantic ports. There is little wonder of this in view of the small amount of tonnage allocated to this trade. Only 80 steamers of 272,700 gross tons were available during the past year, whereas 133 steamers of 481,178 gross tons have been allowed in trade with the west coast. More tonnage was provided for the New England coal trade; more had been provided for trading with the West Indies.

Resignation of the shipping control committee raised the hope of shipping men that more tonnage would be released immediately for service. They had been told that this committee exercised jurisdiction over more than 1350 ships, representing some 7,300,000 deadweight tons, and it was but natural to expect that some of these ships would get back into private trade with the passing of the committee. No such thing has happened although a gradual relinquishment of ships is expected.

Early Relief Expected

The shipping control committee did have charge generally of advising the trades and routes into which ships should be divided, and it did advise with the war department on the operation of that fleet of a thousand or more ships which were used to transport and provision the American expeditionary forces in France. But the committee has highly systematized its work and when P. A. S. Franklin and his associates saw fit to resign, their office was almost self-running, and it was an easy matter to transfer all of the functions which had not become extinct to other officials of the shipping board. Anticipating much from the future, the shipping people of the world have cause to hope that relief is soon to be had. This is desired by American shipping men as by the shipping interests of no other country. They wish to do business and would have restrictions removed as rapidly as possible. The tonnage released was a considerable help but was not nearly adequate. Had the import and export restrictions continued, a few thousand more tons of ships would have been a material aid, but import and export restrictions have been lightened and contracts demand the delivery of a larger class of goods today than was possible one month ago. Other than preventing dealings with enemy citizens, the war trade board now permits the importation of many commodities which have been on the "conservation list."

Service for Antwerp

THREE ship lines have announced their intention of serving the Belgian port of Antwerp. The Lloyd Royal Belge will have Antwerp as a home port. The Cunard line would make Antwerp a port of call using the old German line docks. The Red Star line has re-established its service between Antwerp and New York, which was stopped by the outbreak of war in 1914.

The Red Star line will place its freight vessels in the Antwerp service as rapidly as they are released by the government. Later the passenger liners LAPLAND, KROONLAND, FINLAND and SOUTHLAND will be assigned to the New York-Antwerp service.

RATES ADVANCE

Embargo restrictions are discarded faster than ships are released—Foreign vessels give some relief

In consequence of the elimination of the submarine danger, with the attendant discontinuance of the convoy and other naval regulations which governed the movements of cargo vessels during the war emergency, it has been decided to man all outgoing vessels, excepting for the present those steamers engaged in the transport of troops, with merchant sailors. The navy department is gradually turning back to the shipping board such vessels the use of which are no longer needed in the military service. The quartermaster of the army indicated that 800,000 deadweight tons had been marked for return. About the middle of December 100,000 tons were allocated to commercial trades. Four vessels were placed in the cotton trade and five others were sent to the east coast of South America.

A number of foreign vessels under charter to the United States were also returned to the shipping board to be placed in commercial trades, but inasmuch as the charters to many of these soon expire, not much relief is expected. Among the ships returned to the shipping board are 40 Dutch, 22 Japanese, 12 Norwegian, 3 Cuban, 1 Chinese, 1 Russian, and 20 American. Many of these are in foreign ports and preparations must first be made for their return to ports of the United States.

Draw up Operating Agreement

In anticipation of the allocation of the vessels to private American ship lines, the shipping board has promulgated its form of operating agreement, fixing the percentage of compensation on the freights that shall be allowed the operators of the vessels. This agreement is a modification of the one issued by the board last summer, to which the operators objected as not affording them just compensation for their services.

Preparations for the return to normal conditions are therefore advancing but it may be several weeks and maybe a month or two before there is any conclusive indication of what conditions in the shipping field will be with the restoration of peace.

Maritime insurance agents are attempting to prevail upon American fire insurance companies to enter the marine insurance field and thereby provide a wider market for policies. Shippers are holding off in anticipation of better rates. War risk is still being written in the American market whereas mine risk is being written in the British. Some American owners are contemplating assuming the war risk and thereby saving a few dollars in insurance. Antisubmarine guns are being removed from merchant vessels.

Removing the Traces of War

Obstacles to navigation, especially on the Atlantic, are being removed as rapidly as circumstances will permit. German mines have been scattered all along our Atlantic coast and the navy department is announcing these as rapidly as discovered. Some unknown or unrecognized wrecks are also being reported. Lightships and other signals to navigators are being restored and everything put in readiness for the resumption of normal commerce. War dangers, however, are not entirely absent.

The British admiralty has announced that all lights on the south and west coasts of England, Wales, and the west coast of Scotland between North Foreland and Cape Wrath, and all lights on the coast of Ireland and Channel islands, as far as possible, will be exhibited regularly and the usual fog signals sounded. This will be conducive to safe navigation and a considerable relief to mariners who have been working through the war zone for the past few years.

To protect navigators along the Atlantic and Gulf coasts, the United States weather bureau began on the first of the new year the system of displaying two red lanterns with a white lantern between to indicate the approach of a tropical hurricane or one of those extremely severe and dangerous storms which occasionally move across the Great Lakes and Atlantic coast.

Pacific Market Unsettled

There is little activity in the charter market in the north Pacific at present. Conditions are so chaotic and uncertain that neither operator nor shipper is prepared to do business, and no improvement is anticipated until something is known regarding the government's attitude toward shipping.

The scarcity of tonnage remains acute. What few vessels are available are eagerly taken but the inactivity mentioned above refers to the situation as a whole. As soon as the government announces what policy it will adopt as to its new merchant fleet, as well as its attitude on charter rates, operators will know what to expect and there will be renewed interest in the market. In the meantime, charters are passing through the period of uncertainty following the war that is affecting other lines of business.

The lumber business, which absorbs a large amount of tonnage from this section, is quiet. Foreign buyers will not place their orders at present owing to the high price of lumber and the excessive freights. If no decline follows, it may be expected that foreign markets will soon order for their immediate needs. In the Oriental situation, conditions are somewhat improved as the result of the removal of embargo restrictions upon many imports from Japan and China. Space from the Pacific coast to the Orient is in strong demand at going freights which are extremely high.

With the United States government operating a large fleet of merchant vessels and no definite policy established as to the future, it may be expected that individual initiative will be temporarily curbed. When private capital knows on what basis it may operate, there will be renewed activity in the market. There is some demand from foreign owners to purchase vessels but there seems no strong market for the steamers which the United States government has expressed its willingness to sell.

Trade at Boston Grows

Boston's export trade has increased tremendously during the past three months and approaches prewar conditions. The situation may be understood when it is stated that a ship-a-day basis has been reached and all transatlantic terminals are congested with merchandise. Last September, only six steamships departed from Boston for oversea—the following month 17 left that port for foreign destinations. During December, the sailings averaged one daily. During January facilities of the terminals and the feeding railroads will be taxed to the utmost. This splendid showing is due in a large measure to the British ministry of marine rather than to this government as the bulk of carrying is in foreign bottoms. Export of cereal already is gratifying and soon will total 1,000,000 bushels per month, it is believed. Quantities of steel, provisions, apples and general merchandise are going forward and shippers are elated at the prospect of resuming business with Europe which, till recently, was at a standstill. The South American trade is picking up in a gratifying manner. All in all, the outlook for the new year is promising.

Gulf Freight Piles up

Despite the statement of the export control committee to the director general of railroads recently that "at New Orleans allocations seem ample to remove from the terminals all active export traffic, as well as to take care of such freight as is enroute to that port," investigation on that date showed that there were approximately 2000 cars unreturned from the hands of the Public Belt railroad. This line links all the wharves of New Orleans with the trunk lines of railroad entering that port. The abundance of unreturned cars was pointed out in a statement of B. L. Winchell, regional director of railroads, with headquarters in Atlanta, Ga. Mr. Winchell conveyed this information to Mayor Martin Behrman, of New Orleans, who replied that the accumulation of freight was due to lack of ships and not to poor service on the part of the Public Belt railroad.

The real need of New Orleans and all the Gulf ports is ships for the Latin-American trade. These need not be large vessels, but they are needed now, if the European exporters and shipowners are not to be allowed to take Latin-American commerce from the gulf ports of the United States.

What Congress Plans for U.S. Ships

Leaders at Washington Outline Views on Future Legislation Needed to Promote American Merchant Marine—Definite Plans Lacking

By L. W. Moffett
Washington Editor, The Marine Review

AMERICA is offered her choice. A real, worth-while American merchant marine! A fleet of ships under the American flag plying the waters of the world. Restoration of the proud title of mistress of the sea, when the Yankee clipper was known in every port. A return, with a 25 per cent improvement, of the days before the civil war, when 80 per cent of our foreign commerce was carried in American bottoms,

Or—

A beggar of ships, with our commerce paralyzed, "a fettered and embargoed trafficker;" a changing of the word *mistress* to *vassal*. A return of the days prior to the world war when less than 10 per cent of American commerce was carried in American bottoms, the American flag almost a curiosity when seen in some foreign ports, and a sight unknown in many others.

Draw a diagram showing the order in which different nations have held the supremacy of the seas and the curve will at one point strike the United States, and cause just pride. But unfortunately it does not end there. It goes further—which causes humiliation. Before the days of Solomon, we are told, the merchants of Tyre were operating ships and extending their trade to the then known regions. Their supremacy on the seas passed, after supporting dynasties and building cities by the use of ships, to Greece; then to Italy; then to Portugal; then to Spain; then to Holland; then to England; and then to the United States; but again to England.

The past is gone and its recall has only the merit of a spur to a better future. There is little need to recite how this republic, with its genius, unexampled resources, its superior advantages possessed by reason of its vast raw materials and its industrial and financial wealth, was forced to turn to other countries to get ships to carry its soldiers and munitions and food to France.

A PROMPT affirmative is given by every American when asked: Are we to have a merchant marine that is worthy of our place as a nation, or are we to stand idly by and let other countries outstrip us, despite our many advantages? Every American worth the name says we must build our own merchant marine, a good nucleus for which now has been started. Ask any member of congress and he will agree to that proposition. But how?

Politics in the past has made a football of the merchant marine. Probably no subject has been more heatedly and frequently discussed during the past 50 years in the halls of congress than that of the American merchant marine. Circumstances of war forced the country to its present position where now it has a chance, which ignored might never return, to create its own merchant marine.

The way to build up a merchant marine, to a practical mind, is to build it. But congress, which must shoulder so much of the responsibility has no definite ideas on the subject.

Nevertheless, it is comforting to observe that the question of creating

What American Shipyards and Shipyard Workers Must Accomplish to Meet World Competition

WE must now turn our thoughts to economy and efficiency in production, more particularly so in our business of shipbuilders, to enable us in the years to come successfully to compete with the shipyards of Great Britain, Norway and Japan. Within a space of 18 months we have become the world's greatest shipbuilding nation and the completion of the government's present shipbuilding program will find us also the greatest ship owning nation.

The ship owner of America cannot hope successfully to compete with the European ship owner if the first cost of his American-built ship is appreciably greater than that of a similar ship built in Europe, so it behooves us as shipbuilders to formulate some means by which we can compete on equal terms with our shipbuilding rivals abroad. At the present time, shipbuilders in Great Britain are signing contracts to build vessels for less than $150 per ton deadweight, whereas similar ships cannot be built in America for less than $200 per ton deadweight.

BY EDWIN C. BENNETT
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American shipbuilders will have to come down to a competitive basis with the yards of Great Britain. This can only be accomplished by one of three ways: First, to reduce the rates of labor comparatively to those of Great Britain; second, to increase the output and efficiency of every man in the shipyard; third, to receive a subsidy from the government.

The most acceptable solution of the problem of competition is by the increase of output and efficiency of the men working in the shipyards.

What we must accomplish in order to offset the cheaper cost of building ships in Europe is to so increase our output of work per man that the greater amount of work turned out at our present high wages is at least equal to if not better than the lesser amount of work at smaller wages turned out by the workmen in European yards.

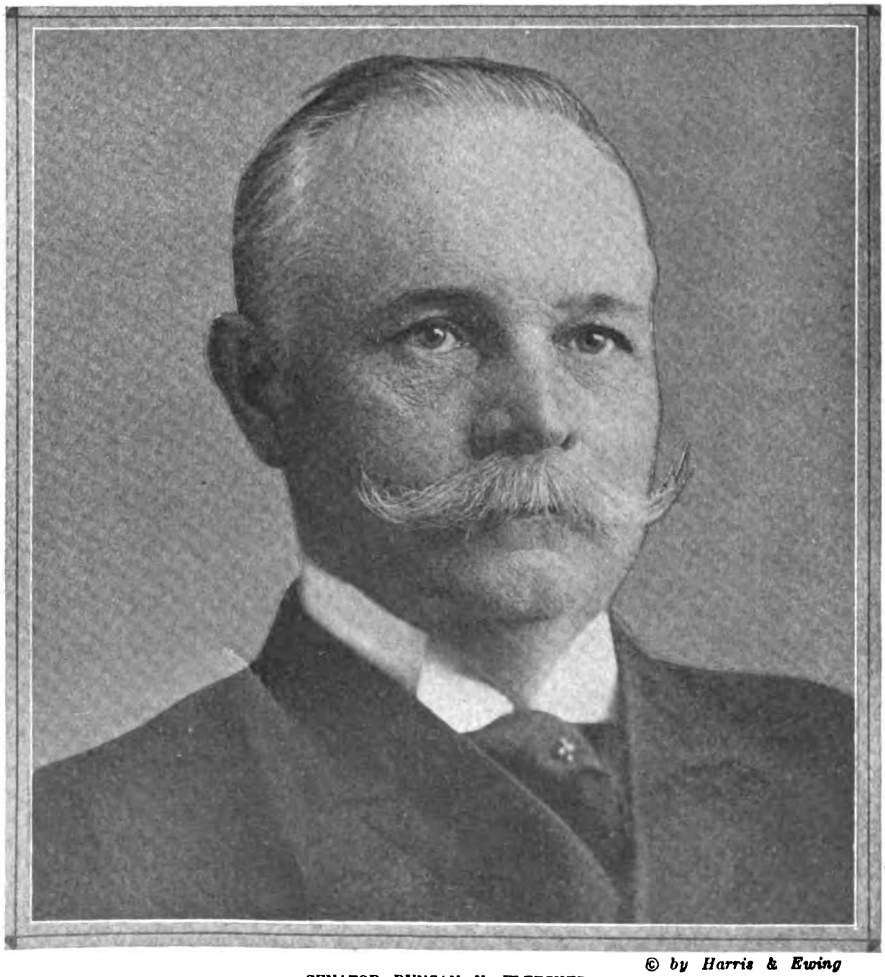
an adequate American merchant marine is being given more serious study today than ever before. Hope is entertained that quick action will be taken which will galvanize this study into practical legislation insuring the desired result.

BECAUSE of his prominence as chairman of the committee on commerce, which has charge of merchant marine legislation, the views of Senator Duncan U. Fletcher, of Florida, on the subject are interesting, although it is doubtful if any great number of practical shipping men agree with many of his opinions. If merchant marine legislation is to be enacted at the present session of congress, Senator Fletcher will have charge of it. But if the question is passed over to the next session, it will be in charge of a Republican because of the change in the party complexion of congress which takes place after March 4. Many think that Senator Wesley L. Jones, of Washington, will head the new committee on commerce when the change comes about. Therefore, his views on the question of an American merchant marine also are important. At the outset, it may be said that Senator Jones' views are broad, even if they will not be concurred in on all sides, including the present administration, which must show a spirit of compromise if constructive work is to be done. Senator Fletcher is in favor of the LaFollette seamen's act as it stands. Pointing out that the Supreme Court of the United States on Monday, Dec. 23, 1918, handed down decisions, the effect of which is to sustain the constitutionality of the law, so that it can be put into force and effect in all its material provisions, he said in a recent address in the senate that he does not believe it will be found to do what those opposing it or who advocate its repeal or amendment apprehend.

"It will be found," said Senator Fletcher, "to accomplish, as it has already accomplished insofar as it has been put into force, what the advocates of the measure originally claimed it would accomplish, that is, the equalization of the cost of operation of American and foreign ships coming into our ports. This is especially true insofar as it affects the wages paid to officers and crews on the ships; and the effect will be to raise the standard of other countries to our standard, rather than, as has heretofore been the policy, to lower our standard of wages paid to officers and crews on American ships to the lowest standard of the ports to which these ships might go."

FOR many years prior to the passage of the seamen's act, I was strongly in favor of legislation to free the seamen from practical slavery," said Senator Jones, a few days ago to a Washington representative of THE MARINE REVIEW, "and I welcomed that act for this purpose if for no other. There may be some things in that act that ought to be changed. I do not say that there are not; but I think the people who are interested in shipbuilding and in the future of shipping in this country should realize the fact that that act is not going to be repealed, at least until it is actually demonstrated that it is not only a detriment to the building up of an American merchant marine, but that it will absolutely prevent the building up of such an American merchant marine. In all our plans for building up and maintaining a great American merchant marine that fact must be taken into account and must be a part of the basis for all legislation to accomplish what we all so much desire.

"There are two great elements interested in this proposition. One is the great labor element of the country and the other is the capital or business element of the country. I should like to see these two great interests get together, through representatives, face to face, and talk over the situation, each one trying to take into account the viewpoint and the interests of the other, both of them taking into account the higher interest of the United States in building up a great American merchant marine, and see if they cannot unite upon a common ground and a common basis for maintaining and building up the American merchant marine. If there are things in the seamen's act that will absolutely prevent the American flag from being upon the sea it ought not to be difficult for labor and capital to get together and remove such a detriment. If there are conditions that labor will insist upon and must have and that capital can concede, it ought not to be difficult for them to get together upon a common basis. I hope something of this kind will be done. I do not believe we will ever get results until it is done. What I fear is that substantially the same controversies that prevented



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SENATOR DUNCAN U. FLETCHER

us before this war began from enacting legislation under which the American flag would fly over ships upon the seas will, now that the war has ended, when peace is formally declared, prevent our giving the encouragement that I think must be given in order to keep our flag upon the seas.

"We are going to come out of this war with a large tonnage. Is it going to fly the American flag or will it, under restrictions that our people can not bear, be driven off the sea or driven to other flags? I hope not.

I THINK this is one of the most important problems that confronts the American people today. We ought to have our own transportation upon the sea, or at least our great share of it. Ships ought to be sailing the seas flying the American flag, under conditions prescribed by American law, framed upon the principles of justice, liberty, and humanity, and I hope it will be done; but unless we do see to it that the conditions under which our ships sail are substantially the conditions of our competitors, our ships will be driven off the sea. Their conditions must be brought up to ours, or else we must provide in some way to take care of the difference. Let us see if we cannot do it. I hope we can bring their conditions up to ours, but I see the tremendous difficulties in the way of that. But if we cannot do it then I want to say that I am willing that we should take governmental action in some way to make up the difference, whatever it may be; and I hope we can consider this question free from politics, free from partisanship, looking only to the welfare and glory of our country. I hope that labor and capital will look upon it in that way; and, if that is done, in my judgment we will pass whatever legislation is necessary not only to build up the American merchant marine—or, in other words to keep upon the sea the American merchant marine that we shall have when this war ends—but also to build it up to the point where it ought to be."

Senator Jones believes that we have the great opportunity to restore the American merchant marine to the position it ought to hold, having the very opportunity that was presented to and taken advantage of by England during the civil war. He agrees with Senator Fletcher that we have the shipyards and the ship labor and that the American people are looking to the sea and to shipbuilding. England and France, Senator Jones pointed out, are going to do everything in their power not only to maintain the position they have upon the sea but to strengthen that position and these governments are going to give every assistance they possibly can which they deem to be necessary not only to keep their ships upon the sea but to increase their number.

"Now, assuming all other conditions to be equal," Senator Jones suggested, "if they grant governmental aid and assistance to private enterprise we will have to do the same thing or else we will be driven off the sea. We will have to do it in some form or other. It is all very well to appeal to the patriotism of our laboring people; it is all very well to appeal to the patriotism of our capitalists; but business is not carried on very extensively in the commercial world upon the basis of patriotism. It is carried on upon business lines; it is carried on with the most intense competition and for profit."

EXPRESSING the opinion that the American capitalist and laborer, with practically equal conditions, can compete with any people on the earth, Senator Jones said, however, if the great commercial countries of the world co-ordinate governmental power with individual initiative and effort, then our individuals can not stand up before it unless they also have help in some form or other. "I do not now suggest what form that shall be," he continued, "but Americans cannot stand up against it unless they have, in some form or other, the aid and assistance of this government. In view of this, are we ready, are we willing, to give that aid rather than forego the ships that we so much need in peace and that are imperative in war? We hope for lasting peace, but war may come. It should not find us without ships, as this war did. What I want to suggest is simply that when we get all the facts, when we get all the conditions and find out with what we are confronted, we meet the problem without partisanship, without striving for party advantage, but, working simply as patriotic citizens do what we believe to be for the welfare and good of our country." Senator Jones said he is in favor

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SENATOR WESLEY L. JONES

of the government paying subsidies, if that is the best method. While he prefers private operation of ships, he also said if the people feel more inclined to aiding the government direct, he would favor government operation of the ships, but he thinks it much less desirable than private operation.

SENATOR FLETCHER insists that the seamen's law should stand as it is, in order to equalize the cost of operation of American ships and foreign ships coming into our ports. The supremacy of a nation, he maintains, will rest largely upon its commercial strength, which, in turn, will depend largely upon command of transportation. No other nation, he points out, can approach America in the production of surplus necessities of life which other nations must have and supremacy is bound to come if she owns and operates the carriers whereby she may take the surplus at will to the markets of the world and bring back the raw materials or the useful commodities she may need.

It is a fallacy, in the opinion of Senator Fletcher, to think that a direct subsidy is necessary to the building up of an American merchant marine.

"It is not true," he said to THE MARINE REVIEW representative, "that all maritime nations have been compelled to subsidize their merchant shipping. It is well known that during the past four years vast fortunes have been made from the operation of ships. Excessive rates, unprecedented exactions, made that possible; but in ordinary times and under normal conditions the business was most attractive and profitable without subsidy. There is no occasion for any subsidy unless the government undertakes to establish new routes, pioneer in new and expensive ventures which can only compensate for the outlay after the trade is built up, open up new lanes or form the new connections, depending upon the future for returns. In such instances the government would be obliged to make allowances—probably furnish ships without charge or something of that sort."

Senator Fletcher also claims that it is another fallacy to think that our navigation laws hamper and hinder the operation of ships under American registry.

"Now, with reference to what is going to happen in the future, I would not venture," Senator Fletcher said, "at this time to offer any matured advice upon that question. It seems to me that we will have to get a little more information; we will have to get a little more data as to what we are able to do in this country, what we have done, what we have ahead of us, and what other countries are doing before we can determine upon a definite policy of a permanent nature for the future."

He went on to explain that he had not made up his mind about what would be the wise course to pursue with reference to the operation of the ships that have been built or their handling. Of course, he stated, under the shipping act as it stands now the United States shipping board must dispose of all of the ships, built under its jurisdiction, within a period of five years after the declaration of peace.

"Whether we will change or modify that law in the future," he continued, "or whether we will stand by it, or what other law we will enact as bearing upon that question will be a matter upon which we will have to have more data before we can, I think, take a decided, positive stand."

TURNING to the cost of building ships, Senator Fletcher said that the lowest figure that he knows of where the Emergency Fleet corporation let contracts—lump sum contracts—for 9000-ton steel ships is about $160 a ton, but he cited the fact that they were let under war conditions, calling for high prices, but now, he said, certain contracts are being canceled and certain contracts are being modified to meet new conditions. Among other things he recalled that allowance for extra time has been discontinued, as well as Sunday work.

Keels laid under the authorization of the shipping board up to Nov. 15, 1918, he said, amounted in deadweight tonnage to 7,942,463; the hulls launched amounted in deadweight tonnage to 4,198,211; ships delivered—that means ships that were fully outfitted with all machinery, passed upon by the classification societies, accepted and actually put into service—amounted to 2,828,781 deadweight tons.

"We must understand, of course," Senator Fletcher pointed out, "that even though it does cost a great deal now to build ships, even though it costs a great deal more to build ships now than it did before the war—and that is a fact which we are bound to recognize, for before the war these ships that are now costing us $160 and more a ton could have been built for $50 or $60 a ton—still the necessity is here. It is almost as acute from a commercial standpoint as it was acute both for commercial reasons and from a military standpoint a few months ago. The total world tonnage in 1914 was about 48,000,0000 [gross] tons. Of that the United Kingdom owned about 28,000,000 tons. The destruction of allied and neutral shipping during the war amounted to something like 21,000,000 [deadweight] tons altogether; so that we have got to supply this loss. Great Britain's greatest accomplishment in the line of shipbuilding during the war was, in the past year, when she built something like 1,800,000 [gross] tons. She expects or hopes to build 2,000,000 tons a year. France is doing her level best to summon all her resources and put herself in a position to contract for 3,000,000 tons a year. That is only 5,000,000 tons of shipbuilding by those great maritime powers. If we can build 6,000,000 tons a year, we will not for a year hence have more than half restored the tonnage sunk by the submarines; and there undoubtedly is need for shipping now. There will be need for it until we restore the world tonnage as it existed before the war, and we will have to increase that tonnage very materially to meet the needs of commerce."

Senator Fletcher said it was his understanding that under war contracts England was paying about $175 a ton to build ships, but of course, expected to bring that figure down.

THIS country, said Senator Fletcher, has shipyards of all sizes, built and expanded, on the Atlantic, Gulf, Pacific and Great Lakes, sufficient to build for all the nations of the earth. The government has expended, he stated, approximately $100,000,000 on three yards, among them being Hog Island, the largest in the world, whose accomplishments, he said, are little short of the marvelous. All our resources, men and materials, available under conditions when due and proper economies are practised and when there is no occasion for haste that makes waste, should be utilized in the building of ships.

"Of course," he continued, "a careful study should be made so as to determine the character of vessel which should be built in every case. If I had my way, I would spread out a map of the world and study carefully every port in every country and ascertain what products and commodities and business could be counted on to move, if given the facilities, to and from such ports, and to what extent the United States may be interested, and whenever possible I would send vessels flying our flag into those ports and connect them with the ports of this country."

At some length Senator Fletcher

discussed the seamen's act, and upheld it in its entirety, and after stating wages paid seamen by the various countries prior to its passage, said that foreign shipowners by it have been compelled to equalize wages on ships coming into American ports and moreover have increased wages out of their own ports, Great Britain included. Also he discussed in detail other navigation laws not only of this but of leading maritime nations of the world, with the statement that aside from certain provisions of the seamen's act, our laws are substantially like those of England, Norway, Japan and Germany. It is a fact, he maintained, that our laws are not as strict as some of those of the other maritime nations just named.

"It is true that our labor charge may be a little higher," he declared, "but we have contended heretofore, and I think very reasonably, that the increased efficiency of American labor makes up for the added cost. Does it not seem reasonable that we ought to build ships just as cheaply in this country as they can be built anywhere? If that is true, then we eliminate any difference in the cost of construction.

"Now, with reference to the matter of operation, if we can equalize the labor cost—and that of itself covers but a small difference in cost—if we do that, ought we not to be on practically an equality with other countries? If, for instance, the cost of operating under the British flag was higher than it was under the American flag, the shipowners of England might have operated under some other flag; but her people were patriotic enough to fly the British flag even though it did cost them a little more to operate British ships than they would have paid under some other flag.

I THINK we ought to appeal a little to the patriotism of our American shipowners. Even if the cost of operating is a little bit higher, they ought as a matter of patriotism to keep their ships registered under the American flag."

Owners Outline Proposed Ship Policy

A DEFINITE suggestion to build the American merchant marine upon a sound basis has been made by the leading ship operators at the port of New York. Private ownership is the first essential and unless that is conceded by the government the general impression is that it is useless to go further with suggestions. A program for the sale of the ships built for the Emergency Fleet corporation has been prepared for the Chamber of Commerce of the United States by E. H. Outerbridge to be placed before the officials in Washington. This suggestion has the hearty support of all the leading American shipping authorities including P. A. S. Franklin of the International Mercantile Marine who has been so closely allied with the shipping board during the war emergency.

Among these shipping men, hope that their suggestion for the sale of the government's ships will be acted upon, is not based merely upon sentiment. They have reason to believe that the proposal is in sympathy with the intentions of the shipping board. At the same time that the recommendations were drafted and forwarded to Washington, ship operators in New York received notices from the board informing them that the government is ready to sell the wooden ships built for the Emergency Fleet corporation at $200 per ton. As a further inducement to the operators to purchase these ships the board declared that permission would be given to transfer them to any flag the purchasers would select.

This offer to sell the wooden ships has not met with a hearty response from the shipping people because they consider an investment in ships of this class not advisable at this time. The British, it has been learned, are offering to sell to American operators steel ships for $110 per ton. The British require that any of their vessels purchased by American operators shall be operated under the British flag.

While negotiations have not as yet progressed to the point where the Emergency Fleet corporation has been able to dispose of any of its ships, a step in that direction has been taken. The Outerbridge recommendations therefore have a most important bearing upon the trend of events. In substance these were as follows:

1.—The Emergency Fleet corporation shall offer for sale to American owners, personal or corporate, ships based upon a per ton price corresponding to the price at which ships of similar size, class, and description can be purchased or built in standard foreign yards at the time of sale.

2.—The government shall receive 25 per cent of the purchase price in cash and shall take a mortgage on the ship for 75 per cent of the sale price at 4½ per cent interest, the mortgage to run for a period of 15 years, the purchaser to make payments into a sinking fund in such installments as may be agreed upon so as to extinguish the mortgage by the completion of its term.

3.—At the expiration of five years from the date of purchase, but in no case later than Jan. 1, 1925, the purchaser shall have the privilege of calling for a reappraisal of the principal of the mortgage, the remaining unpaid amount to be based upon the ascertained cost at that time of building a similar ship in standard foreign yards less proper deduction for depreciation in the expired time.

4.—Any purchaser shall have the privilege of anticipating the maturity dates and of paying off the mortgage in full on any annual interest date, and shall have the right at time of purchase to have the reappraisal clause omitted from the contract.

5.—The law of mortgages on ships should be amended to make the mortgage a proper lien so as to furnish sound security.

SHIP operators generally are anxious to have the business of ocean shipping returned to private hands. They insist that unless this is done the American merchant marine may be placed at the mercy of political favoritism. Grounds for such belief are found in the occasional reports of such influence with regard to a few contracts let by the Emergency Fleet corporation, or in the allocation of ships to American ship lines and shipping companies.

Shipping men have instances to cite where all the ships of one American line have been commandeered and are now retained in the war service. Another operator may have had but one vessel commandeered, but more tonnage has been allocated to the one-ship man than to the big line. Yet another case spoken of is that of a ship owned by a subsidiary corporation of an important exporting company. This ship was commandeered and allocated to another ship operator. John H. Rosseter, in charge of the division of operations for the shipping board, has materially improved conditions and American ship operators are inclined to believe that allocations will in the future be made with more equity.

E. F. Luckenbach, head of the Luckenbach line, insists that the

trouble at present is due chiefly to the fact that the shipping board has not sought more the advice of typical American shipping people. The shipping board, he said, should give more ear to the large American ship operators, the men who have for years conducted an aggressive campaign to build up the American merchant marine and not to those persons who, while residing in the United States, have allegiance to another nationality.

Ship operators in any criticism of the actions of the shipping board have more reason to do so than have shipbuilders. The latest action of the board was to give notice that steel vessels under 4000 tons deadweight would be released. That was a welcome notice to those operators who own small vessels, but the release will operate unfairly against those American lines which are composed solely of large ships. One shipping man figured out that the discrimination would average $100,000 a month in favor of the small boat.

TAKE the case of an owner of a 4000-ton boat which is at Genoa. It was estimated that she will earn $50,000 for her owners upon her return voyage home. This boat can then take on a cargo at $75 a ton and earn $300,000 on the voyage, inasmuch as she is released. The expenses of the voyage will not be over $30,000, leaving a profit of $270,000. It will take this boat two and a half months at the outside to make the round trip. In comparison with the earnings of a 12,000-ton vessel the owner of the small ship will have the advantage by probably $200,000 during the same period of time, because this large vessel is commandeered and remains in the war service.

The 12,000-ton vessel is capable of making 15 knots and is an excellent ship in every respect. Being retained in the war service, however, her return is fixed at $4.15 per ton. During a month she will earn but $49,800, or approximately $125,000 during two and a half months. This boat is operated for the government upon a bare-boat charter basis.

While this example is but a hypothetical case it represents, nevertheless, some of the discrepancies in shipping control which have grown up under the shipping board. These are some of the problems which the ship operators are endeavoring to have called to the attention of Washington and they are the questions which they desire Washington to solve. If they cannot be solved with equity under the present plan of merchant marine control, then the operators contend merchant shipping should be returned to private control.

"Instead of giving us back our ships," said one operator of American liners, "the board offers to sell us new wooden boats. Why doesn't it operate these wooden ships itself if they are as good as they contend them to be, and give us back our old steel ships?"

U. S. Vessels Returned to Owners

Owner—Vessels—Service—	D.W. Tons.
Clyde S.S. Co.—	
Choctaw—To be returned by navy	3,000
Kiowa—To be returned by navy	3,095
A. H. Bull S.S. Co.—	
Dorothy—Atlantic coast	3,940
Crowell & Thurlow S.S. Co.—	
Tampico—New England, coal	3,300
James W. Elwell Co.—	
Mae—West Indies	3,000
Garland S.S. Co.—	
Justin—Tacoma-Shanghai	3,300
Grayson—Chinese	4,000
W. R. Grace Co.—	
Santa Rita—Nitrate trade	2,600
Santa Inez—Nitrate trade	2,715
Santa Alicia—Nitrate trade	3,600
Maryanne Shipping Co.—	
Maryanne—West Indies	2,490
Metropolitan Coal Co.—	
J. H. Devereaux—New England, coal	2,600
Munson S.S. Line—	
Tuscan—West Indies	2,813
Muniala—West Indies	2,725
New York & Cuba Mail S.S. Co.—	
Manzanillo—West Indies	2,700
Yumuri—West Indies	2,700
New York & Porto Rico S.S. Co.—	
Ponce, Porto Rican	3,400
San Juan—Porto Rican	3,400
Pacific Mail S.S. Co.—	
City of Para—Central American	3,460
Peru—Central American	3,120
Newport—Central American	2,200
Eisner Navigation Co.—	
Eisner—Nitrate trade	2,600
Fyne Co.—	
Montara—New England, coal	3,000
White Oak Transportation Co.—	
Bayview—New England, coal	2,650
Swayne & Holt—	
Alvarado—Hawaiian	2,750
El Dorado—West Coast South America	3,280
United Fruit Co.—	
Coppename—West Indies	3,400
San Matso—West Indies	3,200
Esparta—West Indies	3,600
Limon—West Indies	3,600
San Jose—West Indies	3,600
Saramaca—West Indies	3,500
U. S. Steamship Co.—	
Huron—New England, coal	3,100
Binghamton—New England, coal	3,000
Vestkyston Shipping Corp.—	
Pauline—Nitrate trade	2,717
Coastwise Transportation Co.—	
Corsica—New England, coal	3,250
Inland—New England, coal	3,250
Matson Navigation Co.—	
Enterprise—Hawaiian	3,900
New England Fuel & Trans. Co.—	
Arlington—New England, coal	3,600
Brandon—New England, coal	3,600
Pacific S.S. Co.—	
Admiral Sebree—West Indies	3,500
Pacific American Fisheries Co.—	
Windber—Hawaiian	3,700
C. H. Sprague & Sons—	
Meteor—New England, coal	3,700
Warren Transportation Co.—	
Matoa—New England, coal	3,600
China Mail S.S. Co.—	
China ———	3,475
Total (44 ships)	139,752

DESPITE these exasperating events American shipping men believe that the future for our merchant marine is very promising. They believe that a large and influential marine can be built up if the shipping board will but once grasp the proper point of view. During the rush of war it is conceded that it was necessary to act hastily and to take advice of the first supposed authority that presented itself. Now that peace is in sight such a method of conducting the affairs of shipping regulations should be abandoned and care exercised before making a decision.

Ship operation is today in a rather chaotic condition not alone because of the war but in part by reason of the "war babies" as shipping men are prone to call them. "War babies" are companies which had probably owned no more than a tug when the government commandeered all shipping. By some turn of the wheel some companies have been successful in having a rather neat fleet of ships allocated to them. Enriched with the ships allocated the "war babies" have grown to considerable proportions in the shipping business. What is to be done with these is a question which shipping men are asking.

Allocations made by the shipping board during December do not show this situation in the same way as previous allocations. But previous allocations were protected by the war censorship and the shipping board has not as yet seen any occasion to make public what was done. During December the U. S. A. lines and the Barber Steamship Co. were allocated three ships each. The U. S. A. lines received the bark, ANAKONDA, 1393 tons; and the ships, ASHMUND and WESTLAND. The last named is an 8500-ton vessel to be used in trade between New York, Melbourne, Sydney and New Zealand ports. To the Barber Steamship Co. was allocated the MONMOUTH, 8000 tons, New York to Yokohama, Kobe, Shanghai and Hongkong; the GEORGE WASHINGTON, 9000 tons, New York to Montevideo; and "a steamer," New York to Montevideo.

The operations division of the shipping board is at last striving to return all possible shipping property to the owners. Nevertheless the largest and the fastest steamers belonging to American operators are still retained in the war service. Some shipping people are inclined to believe that these vessels will not be returned for a year, and that they will be retained for the use of the war department to bring back soldiers and military supplies from Europe. The shipping board has in its power to build up the "war babies" into formidable rivals of the older established American shipping lines. The potential influence of the board is great and it is for this reason that shipping authorities at the port of New York especially are anxious to have the merchant marine removed as soon as feasible from any possibility of political control.

The Freedom of the Seas from Britain's Viewpoint

By H. Cole Estep

(Photographs, Courtesy of the British Ministry of Information.)

The Backbone of the Blockade Against Germany—Britain's Grand Fleet at Sea

ALONG the limitless, lonely reaches of the North Atlantic nature herself is so utterly untrammeled and the world of wind and tide so completely master of its own devices, that amid such surroundings any thought of restricting the freedom of the seas seems not only absurd, but futile. But the world is small and quickly memory flashes forth another scene—the battlefield of the Somme, seemingly as limitless and lonely as the northern ocean, a great rolling plain of desolation and ruin wrought through over four years of agony that the world might once more live in peace and security.

With this picture comes the thought that the question of the freedom of the seas is not a thing of itself alone, or a controversy to be settled on musty legal precedents or preconceived ideas. Rather it is a great problem which must be dealt with in a statesmanlike manner, in the light of what has been wrought on the battlefields of France and Belgium, and with a full recognition of the tremendous changes that have issued from the war.

THE task of defining what "the freedom of the seas" shall mean hereafter is one of the most important confronting the peace congress now assembling in Paris. More than this, it is the one great point at issue remaining unsettled between the governments of Great Britain and the United States. In fact it is not too much to say that in this many thorned problem lies the chief possibility of failure to achieve that complete unity between the English speaking peoples of the world which almost everyone thinks is necessary for the future security and welfare of civilization. The interest of the great and rapidly growing shipping and shipbuilding industries of the United States in this much discussed problem is of course fundamental. It is particularly important that these industries understand clearly the British point of view, which has not been carefully explained in the United States, and also British reactions to American contentions regarding the freedom of the seas. It is for the purpose of presenting this phase of the subject, in order to explain if possible "the other fellow's point of view," that this article has been written after an eight weeks' personal study on the ground in Great Britain.

The Issue Joined

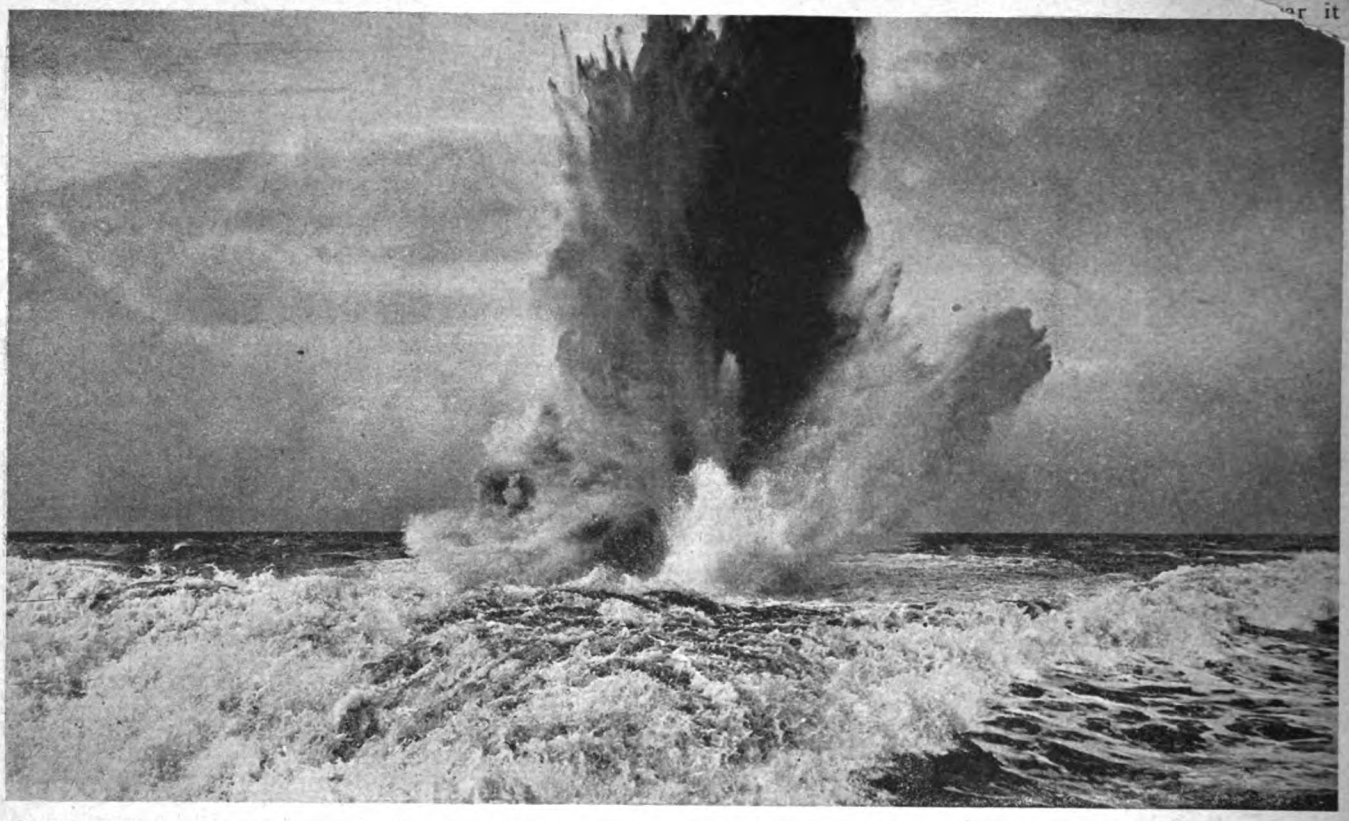
FOR 130 years the United States has contended for the immunity of private property from capture at sea in time of war, yielding only to the single exception of contraband. In addition, America has always stood firmly for the exercise of the right of search at sea in accordance with the traditions of international law. This is the foundation of our sea policy, underlying what we mean by "the freedom of the seas."

Great Britain contends equally vigorously that in modern war battle lines are as definite and continuous on sea as on land, and that an island power is at an intolerable disadvantage unless it can completely stop its enemy's traffic overseas. Furthermore, Britain claims that inshore blockade is no longer possible; instead whole sea areas must be closed. Likewise it is pointed out that search at sea is impracticable and dangerous with big modern cargoes. Therefore, England says, suspected vessels must be taken into port for examination.

On these differing points of view, the issue is joined. It is these great fundamental questions which must be settled on a just basis at the peace congress.

THE phrase "freedom of the seas" is an unfortunate one, since it has been used extensively by German propagandists as a camouflage for their desire to crush or curtail British sea power. "The freedom of the seas," from the *boche* point of view, has meant simply the entire elimination of the blockade, either directly or by permitting a free flow of contraband goods through neutral countries. This contention of course may be dismissed without special comment. International law has always recognized the right of blockade, and the conditions of modern war and transportation have enlarged the blockaded areas.

As briefly and clearly as possible let us now contrast the differing points of view of the American and the Britisher toward this grave problem. For 130 years the American contention has been singularly consistent. The form which the freedom of the seas idea has always taken in American advocacy is that of insisting upon the immunity of private property at sea from capture, it being understood that the property in question is not contraband and that it is in a neutral ship. In its boiled down essence, this is all that lies under the mountains of talk which have been heaped on the freedom of the seas question in



MAKING THE HIGH SEAS FREE—DESTROYER EXPLODING A DEPTH CHARGE IN THE WAR AGAINST THE SUBMARINE

the past few months. In other words the fundamental American contention may be expressed as follows: "Why should you recognize the right to capture private property at sea which you do not recognize in land war? Why draw in land war elaborate distinctions between belligerents and civilians, and at the same time uphold the right of booty at sea?"

TO this the British reply has always been the same, namely, that an island power is at an intolerable disadvantage in war if it is not at liberty to stop completely the enemy's traffic overseas. It is pointed out that although private property is immune from seizure under international law in land operations, this does not give a belligerent the right to import food and other supplies from a neutral state *through the enemy's lines*. And in modern war, England contends, the lines of battle may be continuous around an enemy country, and as definite at sea as they are on land. The natural disadvantage of an island power in waging war, our British friends are not backward in pointing out, is becoming progressively greater. At present, railways enable a belligerent power on a continent to import supplies through neutral ports as though they were its own. The prospect of the relatively early development of commercial aviation foreshadows a still greater disadvantage to the island power, which in a future war may have to deal with planes carrying merchandise in considerable bulk, contraband included, under conditions which prohibit search en route and to which existing rules have no application. The English also point out that sea power is from its nature and in its history a weapon exercised only on behalf of liberty, and therefore a weapon that must jealously be kept sharp and effective.

On the foregoing arguments the issue is joined. America stands for the inviolability of private property at sea and for search en route; Great Britain maintains the right to draw battle lines on the ocean and to stop completely an enemy's seaborne commerce, regardless of whether it is moving directly to the enemy's ports or through neutral countries and under neutral flags.

Commenting on this difference, the London *Times* said in a recent issue: "In view of the great importance of maintaining the friendliest relations between England and America, they are no friends of the world's peace who would blur or obscure the issue. The question must be taken seriously and examined with every disposition on our part to come to an amicable understanding, so far as that is consistent with the maintenance of British interests and with the honorable British traditions of the sea, to which no power owes a greater debt than America herself." This is plain speaking, but necessary to settle the issue. British sea policy is not as simple as ours; nor was it built up in a day. Its roots go back to before the days of Napoleon and his paper blockades. It is rarely appreciated—and yet the British point of view is not understood unless it is realized—that the pressure from the sea which was so powerful a factor in bringing on the collapse of Germany was not due to any single measure, but to a series of measures directed to one end. Great Britain had many more weapons in her diplomatic locker than simply her orders in council, important as these promulgations were. She relied also on imposing conditions as to the supply of coal, on blacklists of enemy traders and on many other measures, all of which, our English friends point out, we adopted whole heartedly as soon as we entered the war, without seeming to remember our traditional stand regarding private property at sea.

AS one might expect from her history and ideals, England mixed leniency and compassion with firmness in administering her sea policy during the war. Her prize courts always aimed to be liberal in their treatment of neutrals whose ships or cargoes were detained or requisitioned, and payments were on a generous scale. Reasonable agreements also were entered into with neutrals contiguous to Germany as to supplies of food and other necessary

materials, which it was aimed always to furnish in sufficient quantity to meet the legitimate needs of the neutral population without furnishing surpluses for export to the enemy. All this made the so-called commercial blockade a formidable weapon of attack. Never before was its hitting power shown as in this war. "Doubtless," the Britisher says, "neutrals have experienced much inconvenience from this situation, but this is the inevitable result of the extension of the lines of battle on the sea, and in every case it was merely a question of inconvenience and not one of life and bloodshed as in the case of the German submarine, whose depredations many neutrals tolerated almost without a murmur. Would the United States have refrained in a life-and-death struggle against organized piracy and murder on the high seas from using any of the measures we employed to secure victory?"

In considering this question of sea policy, the Englishman points out, we must deal with the world as it is, not as it may be some day after a powerful league of nations comes into existence. "If President Wilson," he continues, "has in mind freedom of the seas only when that time arrives, it differs much from the problem to be dealt with in the world as it is. So far as freedom of the seas interferes with our vital interests, it means one-sided disarmament to the detriment of England, and England only. In this war it is indisputable that the British fleet has not merely saved England from starvation and invasion —it has won a victory greater than that of Trafalgar; it has saved civilization itself from disaster."

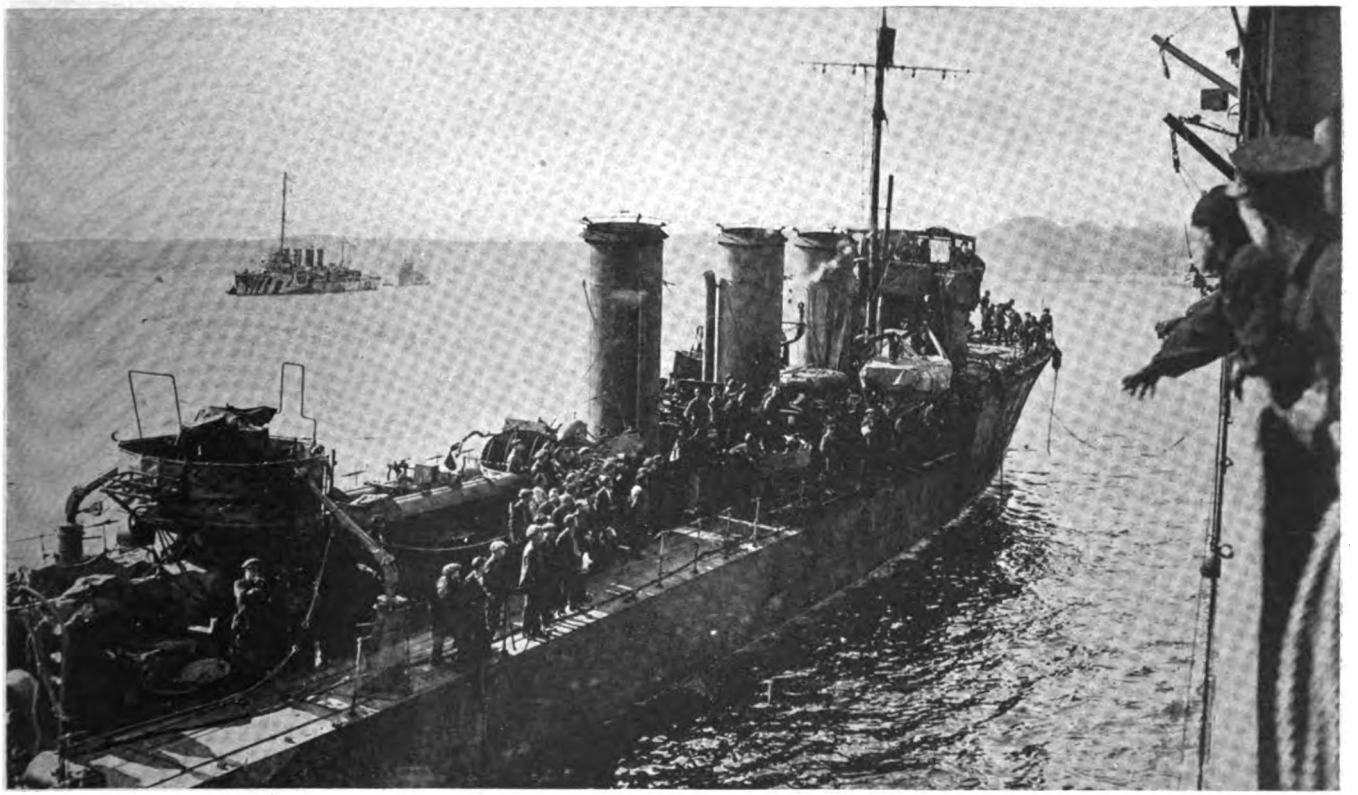
It is these considerations that led Winston Churchill, formerly first lord of the admiralty and now minister of munitions to state emphatically at a luncheon at Carlton's hotel in London, Nov. 13, two days after the signing of the armistice, that "Great Britain can never and will never relinquish her naval supremacy." He maintained that Britain's most vital interests necessitate her full control of the sea in time of war. "The success of the league of nations," he continued, "rests on national integrity, and not on rules and regulations regarding sea power."

LLOYD GEORGE, as becomes a statesman in his position, has been less outspoken, but has said enough in his various election speeches during the past few weeks to indicate that his sentiments are parallel with those just quoted and that he stands for a strong British sea policy in the future along the lines worked out in the great war.

In the foregoing we have sketched the first essential of British sea policy —control of merchant shipping in time of war through naval supremacy. The importance of this conception to the Britisher cannot be overestimated. To realize it more clearly we have only to consider Britain's helpless situation should she be unable to use the sea to import materials absolutely necessary to her existence.

Take for instance the question of iron ore, the basis of steelmaking capacity. Great Britain mines each year at present about 17,000,000 tons of ore. Her pig iron capacity is approximately 12,000,000 tons per year, giving her a deficiency of iron ore of about 10,000,000 tons, which is imported from Spain, France, Sweden and elsewhere. Here we have a raw material absolutely vital in modern war, and the only way England can be sure of having enough in time of stress is through absolute control of the seas. The situation as to grains and other foodstuffs is similar. It is this twin specter of starvation and impotency that makes the man in the street in London, Liverpool or Edinburgh shy of too altruistic an interpretation of that pretty phrase, "the freedom of the seas."

The second essential to be borne in mind in studying British conceptions of the freedom of the seas is the revolution in modern warfare caused by changes in the sizes of armies, in weapons and munitions, and in modern commerce. The old formulas, according to British statesmen, do not fit the new facts. To illustrate this statement, reference may be made to contraband. So ignorant were English leaders of the conditions of modern warfare that in 1907 Great Britain deliberately proposed the abolition of contraband! Furthermore



BRITISH DESTROYER BRINGING TORPEDOED MERCHANT SEAMEN INTO PORT—IF THIS SORT OF THING HAPPENS AGAIN THEN FREEDOM OF THE SEAS WILL BE A MOCKERY

she persuaded 25 countries to vote with her. Almost the moment the war opened the fallacy of this position became evident and today we have lists of contraband that include almost every known commodity.

WRITERS on the development of English sea policy and public men in Great Britain frequently point out that in their adaptation of the international law of the sea to modern conditions they have been guided in many instances by precedents set up by the United States itself in the Civil war, 1861-65, when some of our theories as to the inviolability of private property were badly bent. In considering questions of contraband and blockade, Englishmen declare that a modern state cannot be guided entirely by old treaties and the opinions of text writers who had only the experience of the Napoleonic wars to guide them. Principles guiding action, they claim, must take existing, changed conditions into account, but without ever losing sight of the dictates of humanity as the Germans did.

Naval experts also point out that under modern conditions of navigation and steamship development the old fashioned inshore blockade is no longer practicable. Furthermore, international law insists on a blockade being a real one, not countenancing simply paper decrees, and in order to fulfill this condition, a blockade today must control whole sea areas and supervise *all* the traffic in those areas. Furthermore it is utterly impossible to effectively examine for contraband the cargo of say an 8000-ton ship while at sea without causing disastrous delays and possibly injury or loss of life A modern cargo does not consist of a few bales and boxes that can be readily looked over. On the contrary it is a mountain of freight, securely boxed and bound in great packages weighing tons. In addition, it is very easy at present to conceal contraband of the most valuable character to the enemy under innocent appearing cover. One has only to recall the shipments of rubber and copper in bales of cotton sent from our own shores to Germany, via Holland and Denmark, in 1915. Therefore, for considerations of efficiency, safety and convenience to all concerned, including neutral owners, modern naval authorities insist on bringing suspected vessels into port for examination and search. It must be understood that in all such cases, damages are paid in full where innocent conditions are discovered. And the freedom of the seas contention, the British believe, should not be used to ease the path of the guilty. A great political doctrine known as "the protection of key industries" is now being developed in Great Britain as a result of her experiences with unpreparedness in 1914. In it is included the protection of England's vital shipping industries. Britain feels they must be ready for any emergency.

A summary of British opinion and viewpoint on the freedom of the seas question has been given by the London *Times* as follows: "Readiness to continue as heretofore the freedom of the seas in times of peace, which has been carried out by England—for example as to the admission of foreign vessels to the coasting trade—more than by any other important commercial country, and to agree to the conversion into a *mare liberum* of any sea now treated as a *mare clausum;* a strong conviction, greatly hardened by the lessons of the war, to maintain the minimum safety of the British people and the empire, and to be no party to any agreement conflicting or tampering therewith. A belief that conditions of warfare are so changing that Britain must be ready to protect herself against perils ahead. Readiness to consider any changes put forward by neutrals, consistent with these essentials. Desire to co-operate in rendering impossible the hideous crimes committed at sea during the recent war. Readiness so far as is compatible with safety in the full sense, to promote any practicable scheme for a league of nations. In short, a firm resolution as to essentials and an open mind as to secondary matters."

AN effort now having been made to present clearly the essential features of British conceptions of the freedom of the seas, it may be in order to contrast with them the American policy, and to point out the British reactions to this policy.

Is there, we may ask at the outset, a distinct, consistent American point of view as regards the freedom of the seas? A few years ago this question might have been answered without difficulty. The fundamental principles of American sea policy were laid down by Benjamin Franklin and in the treaty with Prussia in 1785. These principles rested on Franklin's conception that "three classes of persons should be totally exempt from the operations of war—farmers, fishermen and merchants." From this grew up the American doctrine of the inviolability of private property at sea, which can only be assured by making it free from capture in time of war, provided, as previously stated, it is not contraband. It was for the vindication of this principle, extended to apply to the persons of American seamen, that we fought the war of 1812 with England, and likewise the war against the Mediterranean pirates. This doctrine was urged on the world by President Monroe in 1823, by President Pierce in 1854, and by President Buchanan in 1858. In 1856 the United States made it a condition of its adherence to the Declaration of Paris. Provisions stipulating such immunity have been inserted in many treaties to which the United States is a party. At the Hague conference in 1899, Mr. White, the American representative, pressed this doctrine strongly, and it was also eloquently defended by Mr. Choate in 1907. It is older than the Monroe doctrine, and possibly was in President Wilson's mind when he wrote the famous second article in his Fourteen Points of Peace.

THE President, it will be remembered, wrote as follows: "The program of the world's peace * * * is this: * * * Absolute freedom of navigation upon the seas, outside territorial waters, alike in peace and in war, except as the seas may be closed in whole or in part by international action for the enforcement of international covenants." It is this statement that is causing the British people the greatest anxiety at the present time. They find some comfort, however, in reading it along with the fourth article, in which the President says that peace also depends on, "Adequate guarantees given and taken that national armaments will be reduced to the lowest point consistent with domestic safety." This minimum of domestic safety, to the average Britisher familiar with the position and history of his country, means simply the biggest navy in the world.

Further light on the President's ideas on this complicated subject is found in his recent interview with the Paris correspondent of the London *Times,* to whom he said:

"It is essential to the future peace of the world that there should be the frankest possible co-operation, and the most generous understanding between the two English-speaking democracies. We comprehend and appreciate, I believe, the grave problems which the war has brought to the British people, and fully understand the special international questions which arise from the fact of your peculiar position as an island empire."

From the British point of view, there is much hope for co-operation in this statement, for which the London *Times* says it is "grateful, but by no means surprised."

Enough has been presented to show

that time and events have considerably modified our traditional sea policy. In fact our national action has on several times failed to square with our theories, and there is growing up in the country a conviction that perhaps some of the old principles need restatement to make them square with modern conditions. This is in line with English thought which takes the position that the whole question of the freedom of the seas is by no means as simple or easily understood as it once was.

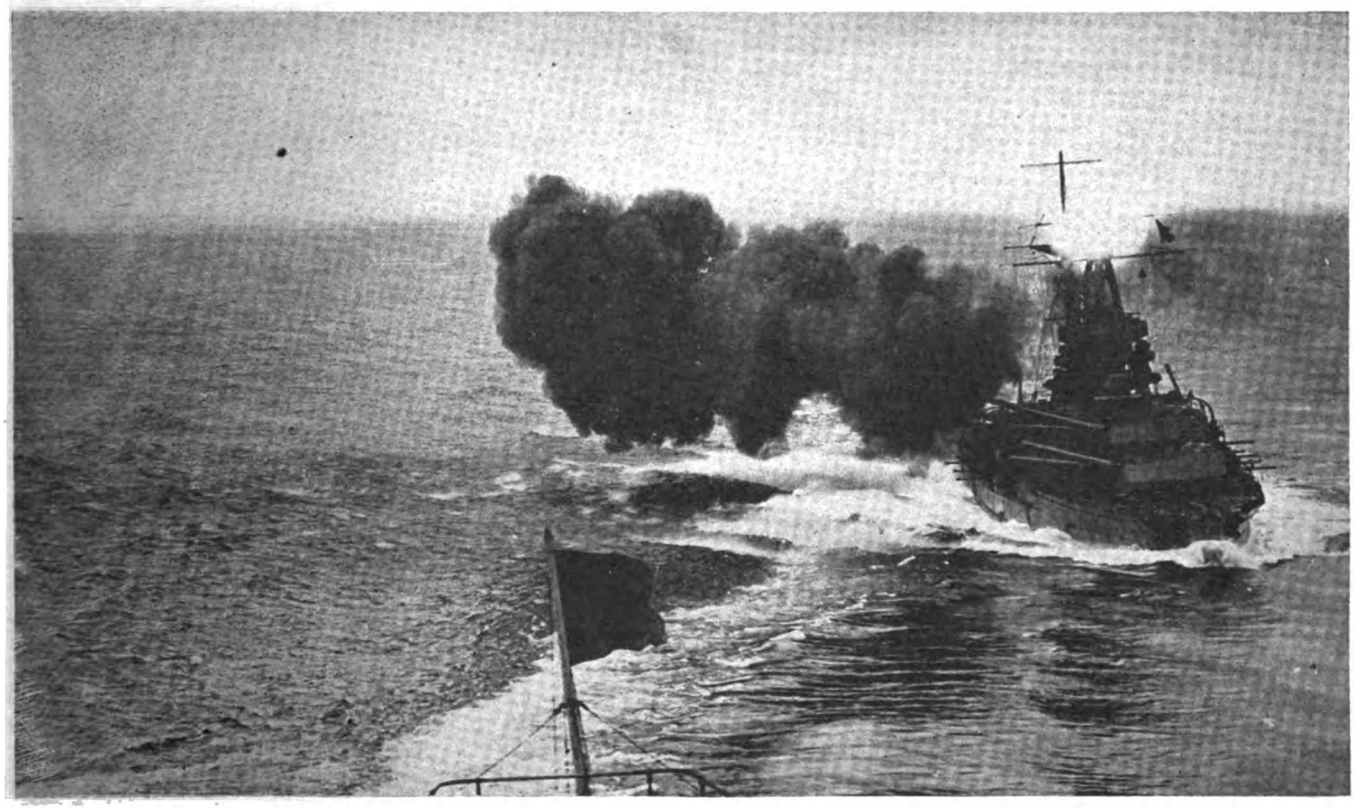
In answer to our arguments for the immunity of private property at sea, the British point out the changed conditions of modern warfare, which make battle lines continuous by land and sea, and greatly magnify the importance of neutrals with borders adjacent to those of a belligerent state. Your typical Englishman also asks:

"What is the sense of insisting that private property at sea should be immune from capture, if the exception of contraband makes so big a hole in this immunity as to make it worthless? In a war like the present, which is the business of whole peoples, everything that a nation exports or imports may be essential to its power to continue the war, and therefore legitimate contraband. Again, what is the sense of protecting private property outside territorial waters, if the institution of the blockade, which now covers whole seas, enables you to capture and condemn it just as surely as though the ship concerned were held up at the very entrance to the belligerent's harbor, as used to be done in the old days?"

IN the war against Germany, the position of such neutrals as Holland, Denmark and Sweden has been specially trying, and as the great champion of neutral rights at sea, we should be interested in the British point of view on this exceedingly complex portion of the freedom of the seas doctrine. Some neutrals, almost everyone will agree, did not pursue courses during the war calculated to engender the utmost sympathy from the allied side. The position was too frequently taken that a neutral has the right to pursue its commerce with an enemy absolutely unmolested, as though no war were going on, growing rich in the process. There are plenty of instances on record of contraband imported into a neutral border state, ostensibly for use in that state, being shipped post-haste and at high prices to Germany. Nevertheless British sea policy has aimed to give these neutrals all the consideration consistent with a state of war, including awards of liberal compensation.

The British point of view toward the small border neutral is very clearly expressed in an exceedingly interesting decision handed down by the judicial committee of the privy council, Lord Sumner presiding, in London on Dec. 16. The case was that of the Norwegian steamship STIGSTAD, owned by the Klaveness Dampskibsaktieselskab, a Norwegian corporation, and managed by A. F. Klaveness & Co., also a Norwegian concern.

While on a voyage from Kirkenes, Sydvaranger, Norway, to Rotterdam, begun April 10, 1915, with iron ore briquettes, the property of neutrals, she was stopped by H. M. S. INCONSTANT and ordered to Lieth and thence to Middlesbrough, England, to discharge.



"GREAT BRITAIN WILL NEVER RELINQUISH HER NAVAL POWER"—WINSTON CHURCHILL

It was admitted that the cargo was for transfer into Rhine barges for shipment into Germany. The cost of the briquettes and freight was agreed to and paid for. But in addition, the steamship managers claimed special damages for detention and diversion from destination. The claimants' real contention, according to Lord Sumner, was that the British order in council authorizing the seizure was contrary to international law and invalid.

In its decision, the court spoke as follows, and here lies the heart of the matter:

"Their lordships cannot be blind to what is notorious to all the world, namely the outrage committed by the enemy upon law, humanity, and the rights alike of belligerents and neu-

trals.. In considering whether more inconvenience is inflicted upon neutrals than the circumstances involve, the frequency and the enormity of the original wrongs are alike material, for the more gross and universal those wrongs are, the more bound are all nations concerned in their repression, and bound for their part to submit to such sacrifices as that repression involves."

Continuing, Lord Sumner said, "It is right to recall that as neutral commerce suffered and was doomed to suffer gross prejudice from the illegal policy of the German government, so it profited by and obtained relief from retaliatory measures, if effective, to restrain, punish and bring to an end such injurious conduct. Neutrals whose principles or policy lead them to refrain from punitory or repressive acts of their own, may well be called upon to bear a passive part in the necessary suppression of courses which are fatal to the freedom of all who use the seas.

"The argument urged at the bar ignored these considerations and assumed an absolute right in neutral trade to proceed without interference or restriction. The assumption was that a neutral too impotent or too pacific to resent the aggressions and lawlessness of one belligerent, can require the other to refrain from his most effective or only defense against it, by the assertion of an absolute inviolability of his own neutral trade, which would thereby become engaged in a passive complicity with the original offender.

"The seas are the highways of all, and it is incidental to the very nature of maritime war that neutrals in using that highway may suffer inconvenience from the exercise of their concurrent rights by those who have to wage war upon it. Of this fundamental fact the right of blockade is only an example, * * * Belligerency and neutrality are states so related to each other, that the latter must accept some abatement of the full benefits of peace in order that the former may not be thwarted in war in the assertion and defense of what is the most precious of all the rights of nations, the right to security and independence." The foregoing attempted exposition of British sea policy, together with British comment on American contentions respecting the freedom of the seas, demonstrates, it is hoped, that there is no necessary antagonism between British and American views. American ideas are being modified to meet modern conditions, as are the British, and it is the rule of the prize courts of both nations to adhere strictly to principles of justice in all their decisions.

President Wilson's remarks in Europe are reassuring, at least to a degree, and all that is now needed to reach a proper understanding is a spirit of realism regarding things as they are. There is every prospect that a satisfactory Anglo-American agreement as to sea war in the future may be reached. The murderous activities of submarines operating under the German system must be absolutely suppressed, and conditions should be created under which the maritime powers of Great Britain and the United States may continue to flourish side by side in harmony, with great resulting benefits to both nations and to the world at large.

Modern Noah Builds Concrete Ark

THE oddest ship since Noah's time is in process of construction on Terminal island in Los Angeles harbor. Erected on ways consisting of three short logs, with no keel blocks or launching ways between it and the water upon which it is expected to float, this craft, which has been termed "the Ark of the Living God," is destined to carry a shipload of colored missionaries by way of the South Sea islands to Liberia. "Colored Missionary Yacht," is the way Rev. James E. Lewis, architect and builder of the quaint ship, styles the vessel.

The missionary yacht's hull, which is about 85 feet long and 30 feet deep, is made almost entirely of short pieces of two-by-fours with but few hold beams to brace it. One side needs fairing badly but the builder expects to straighten this out when the work has progressed a little further. The apprehension of the beholder that the split, patched and spliced hull frame will go to pieces in the first stiff wind is somewhat relieved when the Reverend Lewis explains that he proposes to construct a concrete boat. One-inch sheeting is to be placed on the outside of the hull and another form is to be built on the inside forming a mold into which the concrete will be poured, he says.

So far, approximately $100 has been invested in the frame and it is estimated by the missionary builder that the completed craft will cost in the neighborhood of $15,000. The missionary states that he is financing the building of the vessel with his own money, with contributions from his flock and with money contributed by outsiders. There are 15 acknowledged members of the "Church of the Living God," but Reverend Lewis expects to receive financial assistance from the colored people throughout the country when the more expensive work about the vessel develops. Just now the builder and designer is awaiting funds with which to buy and pour the concrete.

Another difficulty which confronts him is that the vessel is being constructed in what is, in substance, the back yard of a Japanese fisherman's house which stands between the hull and the water. No arrangements have yet been made for removing this house.

The builder asserts that he built nine boats before coming to Los Angeles from Africa 23 years ago. He wants it made clear that when the boat is completed any missionary society will be permited to send missionaries to Africa on it.

"White folks will be just as welcome as colored people, if they are churchworkers," he says. "If they will pay for their meals on the voyage we won't ask them to dig up another cent. The expense of such a trip would probably be about $35."

In the meanwhile the flags of the United States, of the "Church of the Living God" and of Liberia are flying valiantly from a mast on the uncompleted structure and the boat will be "lynched" in about 100 days.

That's the way Rev. James E. Lewis pronounces "launch" and that's when he says it will be done.

Late Marine Patents

Copies of any one of these patents can be obtained by sending 15 cents in stamps to Siggers & Siggers, National Union building, Washington, by mentioning THE MARINE REVIEW.

1282770—Navigation rule, William DeWitt, Kobe, Japan.

1282850—Superheater for marine boilers, Walter F. Keenan Jr., New York.

1282851—Superheater for marine boilers, Walter F Keenan Jr., New York, and David D. Thomas, Baltimore.

1283035—Detachable boat motor, John Alban Bagger, Stockholm, Sweden.

1283345—Means for preventing vessels from sinking, Emil Sova, Bridgeport, Conn.

1283397—Boat handling apparatus, Otto Carlson, Astoria, Oreg.

1275286—Towing system for ships, Georg Meyer, Berlin-Charlottenburg, and Emil Waltz, Berlin-Steglitz, Germany; assigned to Siemens-Schuckertwerke, G. M. B. H., Berlin, Germany.

1275399—Means for launching boats from ships; Moffat Crooks, Enfield, Wash., Ponders End, England.

1275402—Ship protector, Kazimirz Cwiklinski, Blue Island, Ill.

Belgium's Future Depends on Ships

Devastated Nation Begins Struggle for Trade Which Will Rehabilitate Her Shattered Industries—Ports, Canals and Roads Wrecked by War

BELGIUM never possessed an overseas merchant fleet of great consequence and the war has practically wiped out even that. With the indomitable courage that marked this nation throughout the war, the Belgians are today spending heroic efforts to reconstitute their foreign trade. Most of the Belgian companies have been compelled to locate in France and England while their own country was occupied by the enemy and they have been forced to accept the charities of others. One shipyard has been established by them near Glasgow, Scotland, with the consent of the British government and that is turning out merchant vessels. Although the British require that all these ships fly the British flag they are owned by the Belgians and constitute a part of the Belgian merchant marine.

Prior to the war Belgium owned an overseas merchant marine totaling approximately 750,000 gross tons. Today her merchant marine will total probably not over 250,000 tons, the remainder having been wiped out by the German submarines and mines. Her merchant fleet has suffered mightily by the war. In the hope of obtaining more ships to add to the Belgian flag, agents have come to the United States. Efforts to purchase ships here have not as yet been successful and offers have been made to take charters but to no avail. It is costing the Belgians approximately $90 a ton to build ships in England and even though the British insist that these boats shall fly the English flag there is some compensation in owning the vessels. Offers to build new ships in the United States have been at a cost of $240 a ton. That increased price together with the restriction imposed by the shipping board which prevents the escape of any vessel built here to a foreign flag are obstacles which have prevented the Belgians adding to their fleets here. Offers of wooden ships have not been considered, the Belgians insisting upon steel alone.

OVERSEAS shipping of Belgium has heretofore been dependent upon three ship corporations. Adolph Deppe operated three ship lines, and the Red Star Line is operating two steamers under the Belgian flag. These latter are the GOTHLAND and the SAMLAND, both being approximately 8000 tons gross. Lloyd Royal Belge is the most important line. This company was organized as a corporation after the war had broken out. At that time it owned 40 ships and its head, M. Brys, turned them over to war purposes. Of the original fleet of 40, only 16 vessels remain. The other 24 were sunk by submarines and mines. Of those remaining, 12 are temporarily flying the British flag, carrying supplies to France or handling other war work. The other four are still in the service of the Belgian relief commission.

Joseph A. Nash has been appointed manager for the United States and Canada for the Lloyd Royal Belge, with headquarters in New York. In 1916 this company issued bonds to the extent of 25,000,000 francs, guaranteed by the Belgian government. The opening of the New York offices is the first attempt made by a Belgian ship line to form a direct transatlantic connection with North America.

"The Belgians," declared Mr. Nash, "have things to sell which we, over here, want. On the other hand, there are many of our products which Belgium not only always wanted and needed but which, through the work of the Belgian relief, have become almost indispensable to her. I have particularly in mind certain foodstuffs, canned goods, preserved meats and the like, for which the Belgians have acquired a taste they will never lose."

AS a small maritime nation Belgium is eminently fitted to be the agent for a large one. We should make her our commercial representative for the entire continent and let her establish the nucleus of our future European business. Before long we will be in need of just such representation and Belgium's plans could be made to dovetail excellently with our own."

The first trip, as soon as the Lloyd Royal Belge has organized its service, is to be made between Antwerp and New York. Just as soon as this route has been fully established, the Belgian line plans to send vessels to Philadelphia, Norfolk, Baltimore, Charleston and even Galveston. Later Canadian ports will be added.

What Belgium needs first of all, Mr. Nash said, is American machinery. Cotton and textile fibers are next required as well as immense quantities of tobacco. In return Belgium will ship us her linens and her needle-work.

Antwerp, Belgium's great port and one of the world's largest, is reviving from war's enforced stagnation — Ostend and Zeebrugge are still blocked and Antwerp must handle the nation's trade.

Much of this is being manufactured even now, more than 60,000 women and men being engaged in these industries. Despite the havoc wrought by the Germans, enough has been saved to enable these people to keep at work and produce marketable goods. Glassware is one of Belgium's specialties and its manufacture will be resumed on a large scale just as soon as a proper survey can be taken of what has remained intact of the country's industrial facilities and what is in need of reconstruction.

"Belgium will get back into the commercial race without delay," said Mr. Nash. "The speed with which she does this will depend upon two factors: the amount of industrial rehabilitation to be accomplished at home and the number of vessels she will have at her disposal to export and import. There is one thing Americans must bear clearly in mind when thinking of their own future relations with Belgium: Belgium is not a poor country. Far from it. She is one of Europe's richest. She is like a man who has been in jail with plenty of resources but unable to utilize them. She has never been like a pauper and is not now. The war is over and her leading men are eager to put their great wealth to work.

"You can best judge of Belgium's courage when you consider her shipping plans. Prior to the war, only a few of her ships plied under the Belgian flag between Antwerp and New York and these under the management of the Red Star Line. King Albert is the most enthusiastic of all Belgian supporters of commercial expansion and in reaching out for a fair share of the world's trade his country is looking to the United States for the same opportunities which we are according to other nations."

SHIPPING to Belgian ports was discontinued in October, 1914. Resumption of trading with those ports, now that the enemy has left the country, cannot be expected until the damaged ports are repaired. The port of Zeebrugge suffered extensive damage as a result of the war, and it is difficult of access owing to the presence of vessels sunk in its approaches both by the British navy and by the Germans before evacuation. A similar situation prevails at the port of Ostend. At both ports discharging plant, port equipment and railway facilities have been injured or destroyed by the enemy, and many bridges and roads have been wrecked. Some time must necessarily elapse before either port is available for ordinary traffic.

The port of Ghent is approached by the sea canal from Terneuzen, in Holland. The portion of this canal in Belgian territory was the scene of severe fighting between Belgian and German armies, and it is understood that certain of the bridges spanning it have been destroyed and vessels have been sunk by Germans in the fairway. Until technical examination is made it is impossible to say whether the port of Ghent may soon be ready to receive merchant shipping.

So far as is known the great port of Antwerp has not been extensively damaged, and it is possible for traffic via Antwerp to be resumed in the near future. The Lloyd Royal Belge will relocate its main headquarters in Antwerp. French ports being congested, only goods of prime necessity for Belgium may be shipped that way. Therefore Belgium will be dependent upon the facilities at Antwerp until her other ports are restored.

In addition the whole Belgian railway transport system has been disorganized by the war. Large numbers of cars and many locomotives were lost at the time of the German invasion of Belgium, and the Belgian rolling stock saved from the invader has been in continuous use on the French railways for military purposes throughout the war. Many railway bridges, viaducts, switches, crossings and rails have been damaged by the retreating enemy, and a normal service of inland transport must take time for re-establishment, particularly as many of the Belgian canals, which form an important network of inland communication, will be out of use until the barges formerly using them are again available. But even the canals themselves have suffered extensive damage in many parts of the country and must be repaired.

Some shipping authorities declare that in view of these conditions, were there no restrictions whatever on the free export of all goods to Belgium it would be physically impossible for ordinary traffic to Belgium to be begun at once. Even if shipping facilities were provided, it would be useless to send large quantities of goods to Belgium until means of discharging and distributing them are available.

Swedish Yards Expand

IN company with those of other nations, Swedish shipbuilders have their attention focused on reconstructing the world's tonnage. They are preparing to develop the industry in their country to the greatest possible extent.

While Sweden has skilled workmen, a scarcity of raw material was in evidence until recently, owing partly to the fact that Swedish steel works were not in a position to supply plates and shapes for large vessels. This difficulty is being overcome, however, as the mills are preparing to supply these products and Sweden hopes soon to be independent of outside sources for steel.

Great improvement has also been made in the manufacture of auxiliary machinery for ships, such as winches, cargo engines, etc.

The principal Swedish shipyards, which are located at Stockholm, Gothenburg, Landskrona, Malmo and Gavle, have facilities for building several types of vessels ranging from small craft up to cargo carriers of 8000 tons. Most of the vessels under construction, however, range from 1500 to 3000 tons.

From the progress made it is evident that the northern kingdom is making plans to secure a share of the world's shipbuilding and to play an important part in the commerce carrying of the future.

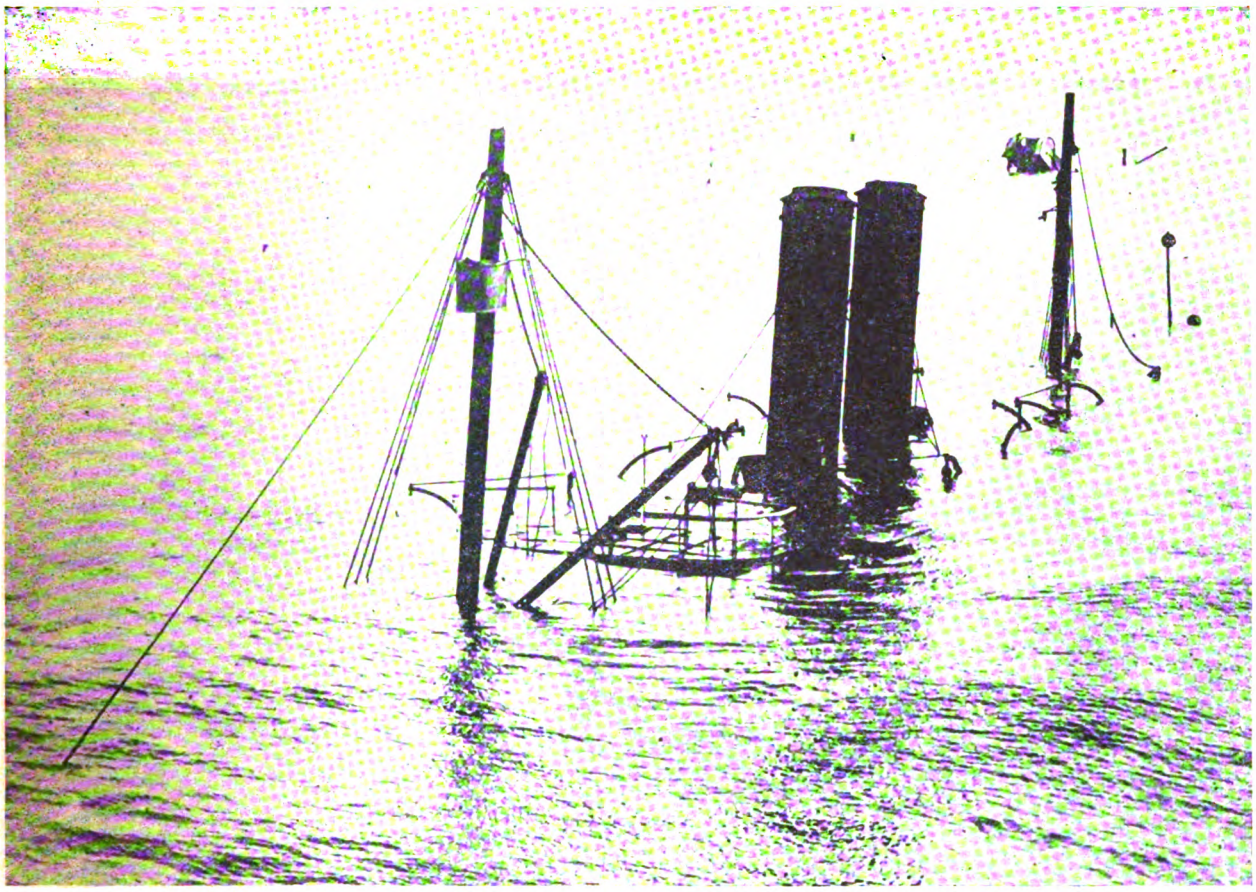
The Speedway shipyard of the Gas Engine & Power Co., and Charles L. Seabury & Co., Consolidated, Morris Heights, N. Y., recently launched its fourth mine sweeper for the government. The vessel was named the SEA GULL. She is of the large seagoing tug type, 187 feet long, 35 feet beam and 7 feet draft. She is built of steel.

Death of B. N. Baker

Bernard N. Baker, shipping expert of nation-wide fame, died recently at Santa Barbara, Cal. His first work of prominence was to organize the Atlantic Transport Co., which he started with one steamer. He brought this line into a commanding position in ocean transportation service and at the time it was absorbed by the International Mercantile Marine Co., in 1902, it boasted a fleet of 17 fine vessels.

As president of the national conservation congress, Mr. Baker took a leading part in building up and strengthening the merchant marine of the United States. It was he who supplied much of the important data for the shipping board bill which was presented to congress in 1915. He was one of the four men selected by Secretary McAdoo for the national subcommittee on transportation problems.

President Wilson appointed Mr. Baker a member of the shipping board but he retired soon after the board was formed. He was born in Baltimore 65 years ago.



REMOVING THE MARKS OF WAR'S DESTRUCTION AT OSTEND, FAMOUS IN BRITISH NAVAL HISTORY—SUNKEN VESSELS ARE NOW BEING RAISED—ABOVE, THE BRUSSELS AT THE FAMOUS MOLE. BELOW, LIFTING BARGE COMING ALONGSIDE A WRECK

Are War-Built Ships Fit for Peace?

Change in Shipping Board's Program Shows Some Types of Cargo Carriers Are Unsuited for Commercial Competition

By V. G. Iden

IN the search for economical merchant ships, the government has at last decided that vessels somewhat larger than have been building must be constructed. Taking into consideration the bunker space, the size of the crews and engine efficiency, it is neither the small boat nor the extremely large vessel that will earn the greater profits. This does not mean that standardization does not possess merit, but merely that standardization should be concentrated on a vessel of economical capacity. During the emergency of the war, speed was the prime consideration and new merchant vessels were designed with the object in view of putting ships in service as rapidly as possible. It is now a question of building ships for the future, and that means that the ships must be designed to meet the competition of the world and earn a profit. To earn this profit it is obligatory upon American builders to produce ships that can be operated economically.

Shifting of contracts by the Emergency Fleet corporation and drafting of some new designs for ships has been generally expected. It has been reported, unofficially, that the ships already built and now under construction are considered too small to meet the requirements of peace-time trade. One report was that the ships building in the Hog Island yard are too small and that the government may direct that larger ships be built there. These fabricated boats now building are of 7500 and 8000 tons deadweight. The suggestion has been made that none under 10,000 tons should be built.

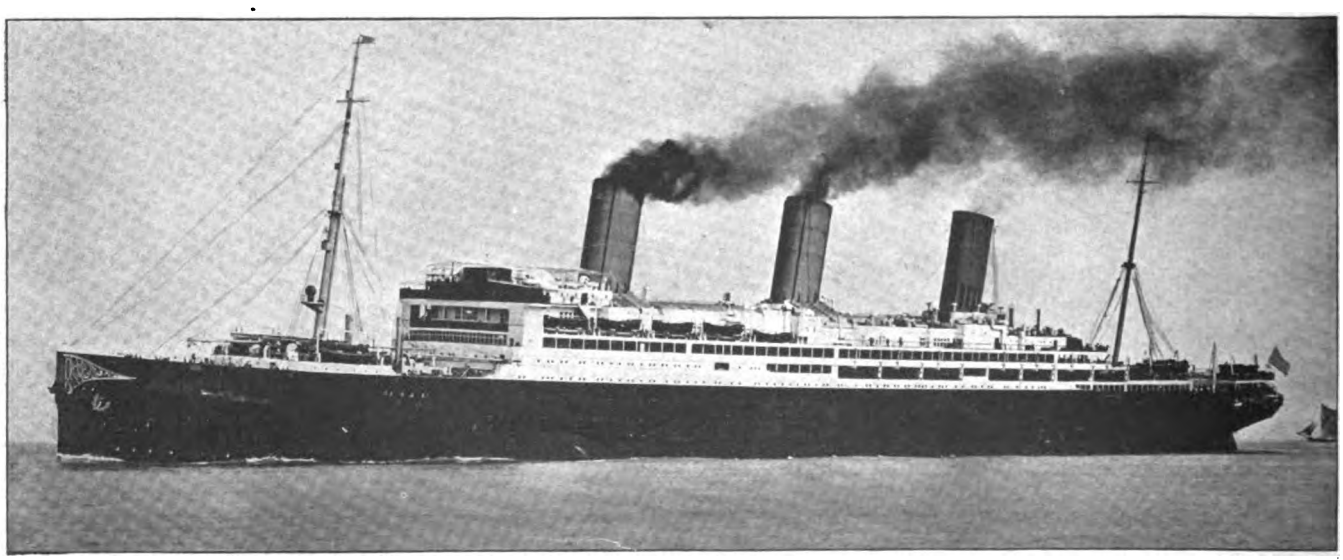
Reports are somewhat confusing in view of certain undenied fundamentals in the shipping world. England's supremacy on the high seas has been due to her vast fleet of tramps, and tramps, as is well known, are comparatively small boats. Robert Dollar, the noted ship owner and operator of the Pacific, is reported to have advocated the building of tramp steamers of 10,000 tons. Mr. Dollar is understood to have insisted that tramps of this size could be operated more economically than tramps of a smaller size and that they could find employment in most of the trades of the world.

THE size of a ship depends upon the trade in which she is engaged. There would be a great loss entailed, for instance, should the United States attempt to place the giant LEVIATHAN, formerly the VATERLAND, in trade between San Francisco and the South Sea islands. And equally foolish would it be to place one of our little coastwise steamers in the Atlantic trade in competition with some of the largest vessels afloat. What is an economic size for a ship is a problem similar to deciding the economic size for a manufacturing plant. The use to which it is to be put is the determining factor. There is competition to be met in every trade and a ship should be constructed with this essential thought in mind.

The American fleet today might be said to be peculiarly rich in standardized ships and especially poor in specialized ships. The 4200-ton ship, such as built on the Great Lakes is a useful vessel and one that will find profitable employment. So will the 5000, the 7000, 8000 and the 9000-ton ships all find useful employment. But to send one of the 5000-ton vessels, for instance, to Baltimore to load grain for Liverpool in competition with a 15,000-ton British cargo boat might not be good policy, because the larger boat would not only take the cargo but also the profit of the trip. So long as the war lasted there was no danger of competition of this nature, but with the restoration of peace the need of ships of "economical" size will assert itself.

With the increased size of the new ships to be built here, there will be a redivision of tonnage space. Larger accommodations for the crew, which are promised, will offset somewhat the economy gained by increasing the size of the vessels.

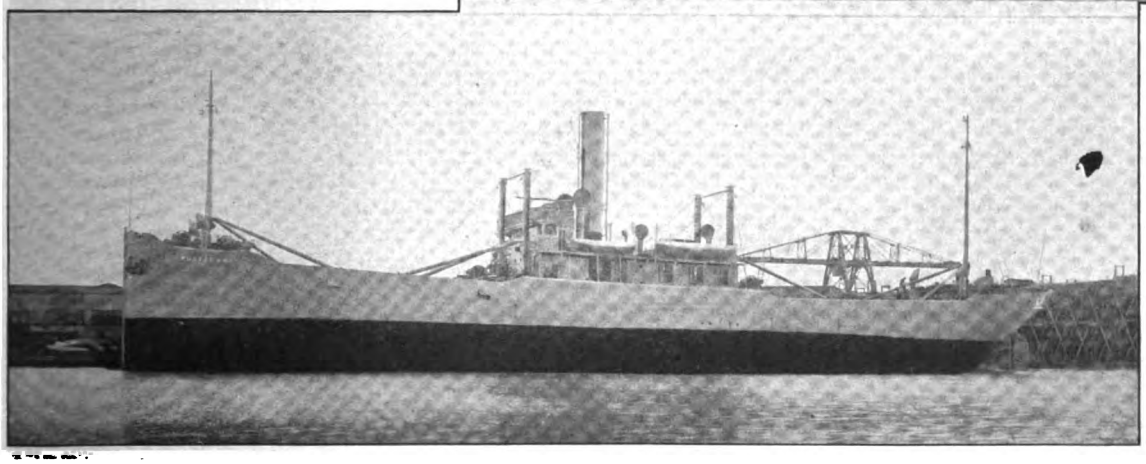
"Aside from improving the structural features of the ships," said John H. Rosseter, director of operations for the shipping board, "we are also arranging or rearranging the accommodations for the men—not with an idea of pampering them or making babies of them, because, quite to the contrary, no such idea entered our scheme of affairs; but we do want them to be reasonably com-



LEVIATHAN, FORMERLY THE VATERLAND, PROVED AND IS PROVING INVALUABLE IN TRANSPORTING AMERICAN TROOPS—SOME SEE IN THE PREDICTED DECLINE OF THE TRANSATLANTIC IMMIGRANT TRADE A DECREASED DEMAND FOR SUCH HUGE LINERS

fortable, and we want their families, as well as themselves, to believe that seagoing is an alluring and desirable occupation.

"The United States shipping board is rearranging the plan of accommodations on its ships. It plans to give the seamen two-berth rooms. We are providing a room where they can change their oilskins, wet clothing and boots when coming off watch. We are also making other improvements for their comfort and convenience, such as a smoking or recreation room for the men when they are off watch. We are providing mess accommodations for the officers apart from the men, in order to avoid the familiarity which, of course, must be banished if good training and respect for authority is to be assured."



At the right, the Gulfmaid, an eastern built tanker. This type of vessel has proved of immense value in war service. Vessel below is the Poitiers, a lake-built ocean freighter. Craft of this type have made a splendid war record. They have proved to be well adapted for Baltic trade.

These plans may be somewhat utopian, but they are certain to prove expensive. Aside from the cost of maintaining such accommodations and paying the higher wages which seamen are today demanding, the space in the new merchant ships which will be occupied with quarters for the crew will be much greater. A ship's space must not be lightly considered. All of it is valuable and economy of operation demands that it all be used to its limit.

These ideas of comfort and safety, however, are in part responsible for the shift in the construction plans. These things may not be had if shipbuilding is to continue under the high pressure that has been the order during the past summer. Seamen will not be recruited if the vessels built prove unseaworthy. High wages, good food and luxurious accommodations will not entice men to take to the sea in poor ships.

The efficiency of wooden ships is questioned today much more generally than a year ago. This is undoubtedly due to the fact that some of these vessels have proved unseaworthy. Aside from the utility of such ships during the emergency, it must be acknowledged that they are not the most economical vessel that can be built for the American merchant marine.

A total of 51 yards were building wooden ships on Nov. 1, 1917. This number had been increased to 130 by Sept. 1, 1918. Of these, 78 were building cargo-carrying wood ships, four were building cargo-carrying composite vessels, 28 were devoted to the building of barges, and 20 to tugs.

"The first authorization for the construction of ocean-going tugs," the shipping board announced, "was made early in the spring of 1918, and some of these will be delivered for service on or before Jan. 1. Authorization for harbor tugs and additional ocean-going tugs was made in July. Contracts for these tugs have been let and construction is now beginning to proceed."

THE merchant marine when increased to the size planned, will require a great number of tugs and barges. The supply of these small craft is comparatively limited and during 1919, the wooden shipyards as well as the other shipbuilding capacity of the country which is not adapted to the building of large steel ships may with great profit be diverted to the construction of vessels of this type. Furthermore the wood shipyards, where it is shown that there is an efficient organization in existence, may turn their attention to the building of wooden ships, of designs which experience has proved to be economical and efficient.

The shipping board has made but a belated acknowledgement of some of the weaknesses of the standard wooden ships that were built on account of the government. In a preliminary report to congress only recently, it said:

"The wood ship division has recognized that more attention should be given to the ships of larger size, and after careful investigation decided to recommend that efforts be concentrated upon the construction of a 5000-ton flush-deck wood ship which would be as strong as the 3500-ton type now being built and which could be produced at a saving of approximately $20 per ton. The soundness of wood ships has been demonstrated in operation, for all of the troubles which have developed have been due to secondary causes such as green lumber seams which were not sufficiently calked, and in certain cases lack of rudder power. This has been borne out in reports received from masters of ships now in operation."

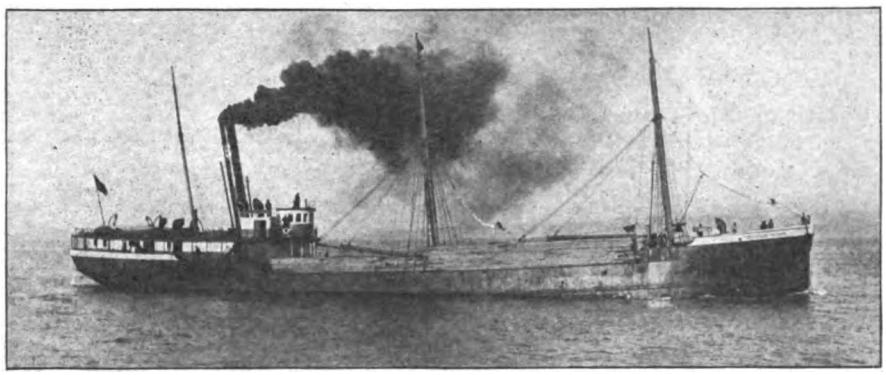
The speed in production which was maintained during the past year has tended to force to sea many vessels which will develop inherent weaknesses. The heavy storms of the Atlantic this winter will show up these weaknesses soon enough and from this experience the Emergency Fleet corporation should profit. Criticism may not be aimed at the wooden ships alone. Some of the standardized and the fabricated ships have shown weakness as well. Any vessel, thrown together hurriedly, no matter whether made of steel or of wood, will be faulty. When turbines are hurriedly installed on these ships, reduction gear troubles are likely to develop. In other cases crank shafts

are liable to fracture and other engine troubles may develop. The best safeguard against these difficulties will be to see that the vessels are well constructed and that speedy construction is not insisted upon to the detriment of economy and efficiency.

WITH the war over, the shipping board has formally announced its intention to concentrate on ships of larger tonnage; suitable for special service. The new program calls for ships built with a regard more to economy than to speedy construction. On the eve of his departure for Europe, Chairman Hurley announced:

"For two months the shipping board has been making a complete resurvey of its construction program and contracts. Believing that the emergency war pressure which necessitated the speediest construction possible would soon end, the investigation has been with a view to a replanning of the ships to be constructed from this date forward. It is planned that from now on ships will be built with special reference to suitability for special service, and with particular reference to the economical cost of operation, including motive power, cargo space, and speed.

"It is also planned that these shall be built with reference to probable trade uses and trade lines so as to adapt them to particular uses and to increase the speed of the turn-around of the ship—this because every unnecessary delay in loading and unloading must be eliminated."



WESTERN COASTING VESSEL OF A TYPE WHICH IS IN ALMOST CONSTANT DEMAND FOR CARRYING LUMBER AND OTHER COMMODITIES UP AND DOWN THE PACIFIC COAST

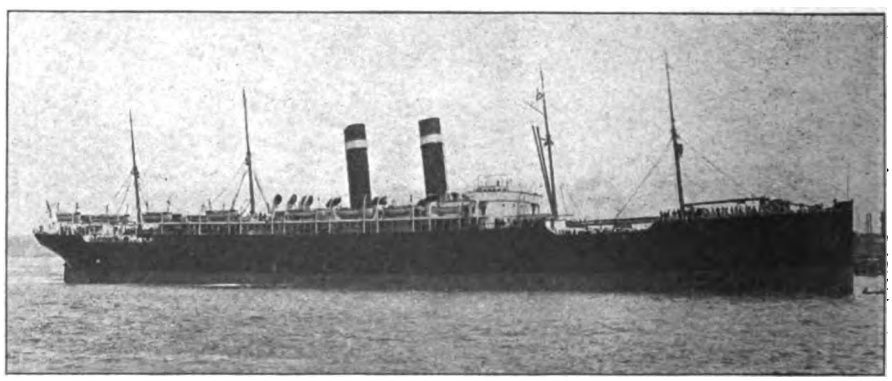
WHEN Theodore E. Ferris, naval architect, was describing the size of government built ships to the senate commerce committee last year, he pointed out that a certain minimum in size was determined upon because of the economy in operation.

"When we settled on 3500 tons," said Mr. Ferris, "we felt that was the minimum size of ship it would pay to operate in ocean service, on account of the large bunker capacity, crew space, and everything. There would not be much left for cargo in overseas service."

It stands to reason that if a 3500-ton ship can be operated in overseas service, a ship of that size should prove commercially profitable in the coastwise trade. But larger ships have been built and are building.

"We have a 10,000-ton troop ship," explained Mr. Ferris. "She makes from 16 to 17½ knots. The next we have is a 10,000-ton tanker and also a 7500-ton tanker.

"Then we have an 8000-ton semicargo and troop ship. That ship is an intermediate cargo ship, and she makes 15 knots. That is a class of ship that will be good after the war and is a good ship now. It has good speed and can carry troops. There is the fabricated type of ship of 5000, 7500 and 9400 tons. Then we have a lake-type of ship of 3300 and 3500 tons."



LINER KROONLAND, A 12,000-TON VESSEL—THIS SIZE OF CRAFT IS CONSIDERED BY MANY AN ECONOMICAL TYPE FOR PRESENT AND FUTURE OCEAN SERVICE

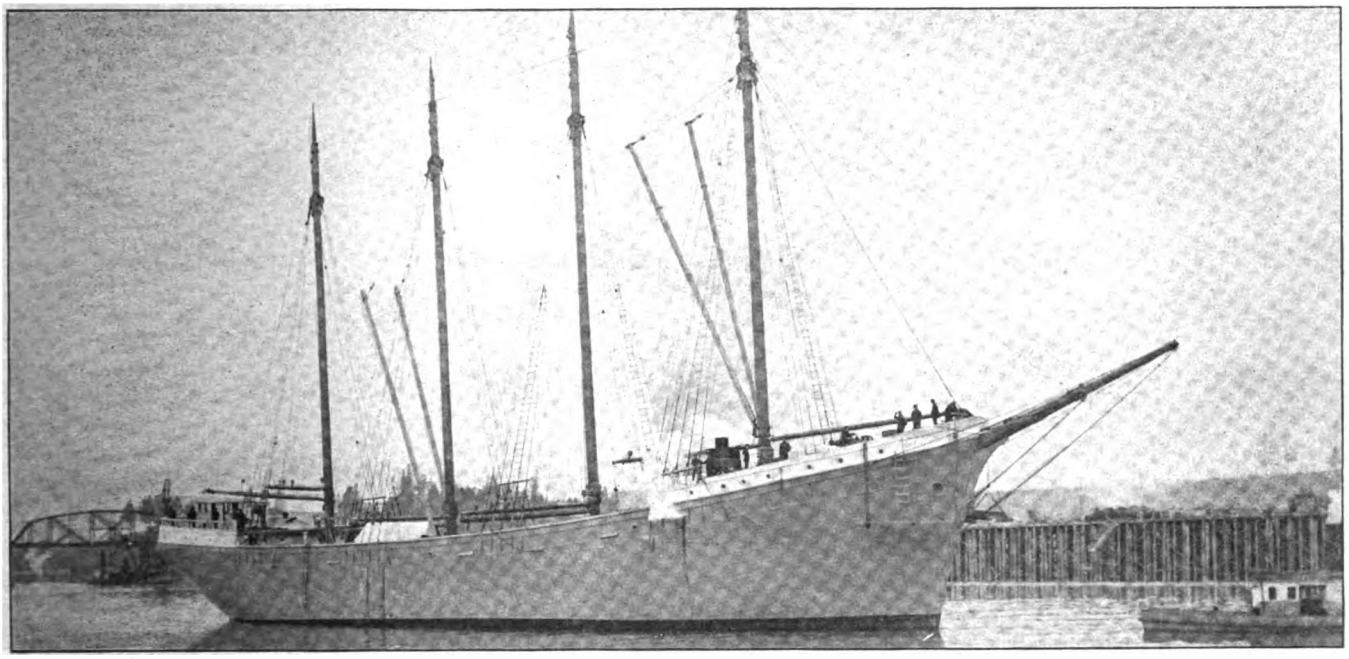
As an examination of the production records will show, the vessels delivered are chiefly those of the smaller sizes. Relatively few of the larger boats have been completed and it is in that type of boat that the American marine is now sadly deficient. Some authorities insist that even the 4000 and the 5000-ton ships are relatively small for ocean service and are better adapted to the coastwise trade. On the other hand a ship of 9000 or 10,000 tons can be operated much more economically in the ocean service because of the relatively small proportion of space required for fuel, and large space for cargo.

The public is inclined to think mostly of the large vessels and forget the vast number of small craft which carry the bulk of the ocean freight of the world. Prior to the war, it was pointed out by one prominent shipbuilder, the world's merchant fleets contained but 2000 ships which registered over 4000 tons each. Prominent shipping lines own more small vessels than large. Of course, many of these smaller ships were inherited from former years and the large vessels are the acquisition of more mature years of experience. But despite the possession of the larger vessels, these same lines find that they can still earn profits from their small ships.

A small ship can put into ports closed to larger vessels. A small ship can engage in trade, navigate far inland over river routes, and obtain freights which are denied larger vessels. The successful operation of the big ocean lines depends upon adequate terminal facilities. It means the owning of large docks and wharves with easy access to inland railroad connections. Furthermore, these ships must be supplied with a constant stream of freight.

With the United States government itself now in virtual control of both the railroads and the ship lines of America, this closer development of the transportation facilities can, of course, be carried out. If it is ever intended, however, to return the railroads and the ships to private owners and operators a different situation will present itself.

Many shipping men consider it a merit to pattern after England inasmuch as England has had such signal success in building and operating merchant ships. There is good reason for this even when the question of size is at issue. England has been building standardized ships. She has been building fabricated ships as well. Her standardized ships vary from 5000 to 10,000 gross tons. In size, therefore,



A WESTERN BUILT AUXILIARY SCHOONER—SUCH SHIPS OVERCOME THE DISADVANTAGES OF THE UNCERTAIN SAILING VESSELS WHILE MAINTAINING A HIGH DEGREE OF ECONOMY OF OPERATION

they are not overly large in comparison with the ships which have been and are building for the Emergency Fleet corporation. But it must be remembered that England had a merchant fleet to begin with and she is today possessed of a considerable number of liner vessels.

Furthermore, not all the merchant ships building in England are of the standard types. Her yards are building other vessels for the merchant trade as well. With the demobilization of her army and the return of her trained shipyard workers to private life, a change in this building program may be expected.

England is deficient in those types of ships in which America chiefly abounds. She has suffered large losses in her channel and coastwise fleets. German submarines did their greatest damage to the fleet of slow moving cargo boats. England's efforts to restore these trades should not be misinterpreted in American shipping circles.

The big ocean grayhounds which plied the Atlantic prior to the war and whose ever increasing size and luxurious appointment was the constant gossip of the public, are scarce today. It would seem that the first inclination of shipbuilders would be to duplicate this type of ship. Whether this is to be done depends in a large measure on economic conditions after the war. The big passenger ships of the Atlantic were made possible by the enormous immigrant traffic which was developed. But the war has reduced the manpower of all Europe. It is seriously questioned whether the immigrant traffic will reach for years the high-water mark that it attained in the long period prior to 1914. The shipping world has not forgotten the GREAT EASTERN, which naval architects declared many years in advance of her age. The public marveled at her size but little it realized that ships many times that large would soon be crossing the Atlantic. These vessels would not have been possible had not a passenger traffic of considerable proportions been developed. With the immigrant traffic off, it is doubtful now whether the normal passenger traffic would be ample to warrant the operation of such giant liners.

THIS does not mean that the large and the fast passenger boats are no longer needed, but it has raised the question of the utility after the war of the excessively large ships. Fast ships will always be in demand, but economy of operation demands that money not be wasted in obtaining excess speed. The advocacy of the motor ship is one proof of the fact that shipping men are turning their attention to ships of smaller capacity. The fuel for oil engines occupies but little space, leaving a greater tonnage for cargo.

It is a strange commentary upon the victory of the allies over the central powers that the largest merchant vessel left afloat today is a German ship, the BISMARCK. The LEVIATHAN, the German liner captured by the United States, is the next largest, while the White Star liner OLYMPIC, built in 1911, of 46,359 gross tons, is apparently the third largest. The BISMARCK, launched in 1914, is 912 feet long and registers 56,000 gross tons. Her engines are 61,000-horsepower.

England has suffered much through the heavy loss of her liner tonnage. The United States never possessed many ships of this type and obtained but few when the enemy merchant vessels were taken over. The American shipbuilding program during the war emergency has been limited to the construction of cargo boats and these, mostly, have been of a small size. As a practical matter it was well that this was so, because it is upon the cargo ship that the shipping strength of a country depends. The United States needs passenger ships badly just now for use as transports to bring American soldiers home from France. Even though time was offered to build passenger boats for this purpose alone, they would lend little of permanent advantage to the country.

Naval operations in European waters during the past four years created a great demand for petroleum. With the Balkan oil fields cut off it was necessary to turn to American sources. Mexican oil, therefore, became one of the prime war essentials. The intensified submarine warfare necessitating the use of especially strong patrols, counter-offensive submarines, and destroyers, rapidly increased the demand for oil. The result was that tankers were built as hurriedly as the shipyards could turn them out. Many tankers were destroyed, it is true, but the supply of this type of ship today is not nearly so short as the supply of some other types.

The allied warships have at last entered the Black sea and are now busy making accessible the oil fields of this region. England and most of Europe will, of course, be better supplied

in the future with petroleum than during the past few years, but this does not mean that there will be no sale for the American product. Tankers will be needed after the war just as they were before. The oil companies of the United States must bring the crude petroleum from the Mexican fields. The British will also continue to draw upon these same fields.

Ships adapted to the tropical and semitropical trades, however, are today in demand. The fruit boats which formerly supplied the United States with bananas and other semitropical foods were nearly all withdrawn by the government and put in the war trade. These must be replaced but no vessels suitable for the trade have been constructed as yet. The American fleet is deficient in refrigerator ships. During the emergency, little consideration was given to refrigerator boats because of the delicate workmanship required and the time necessary for their completion. The lack of refrigerator ships has been reflected in the class of imports and exports during the past two years.

America is today in need of ships to bring nitrates from Chile, rubber from Brazil, hemp and sugar from the Philippines, sugar and fruits from Hawaii, wool from Australia, and sugar from Cuba. Standard ships in many instances, can be utilized in these trades, but it might prove expensive to utilize the smaller cargo boats in trades which involve comparatively long voyages. The small ships can be used with profit in the short runs, to bring sugar from Cuba and fruits from the West Indies and Central American countries, but to make an economical voyage to the Argentine, for instance, it would be advisable to charter a larger vessel.

THE demands on shipping this winter and next spring promise to be somewhat different from the demands of the past or the demands of the future. In the first place, all possible tonnage is going to be used to transport the troops home and in carrying food to Europe. One of the first duties of peace will be to allay starvation. Russia, as well as the neutral nations of Europe, must be fed and clothed, and the allied countries, of course, will have a prior demand upon shipping for this same purpose. Food cargoes eastbound will comprise the greater bulk of the freight movement by water this winter, while the westward movement across the Atlantic will be taken up chiefly with the return of the army.

Emergency ships will meet this need, although it would be unwise of us to anticipate that our standardized ships are going to play any predominating part in it. The British ships will continue to carry the bulk of the freight and the United States will contribute much by turning the neutral ships, now under charter, over to this trade. The demand for tonnage will continue to be so great that practically all types of ships will be able to find employment. In building new ships, however, the opportunity is offered to build specialized boats designed for the particular permanent trades of the future. Here is where the government has an opportunity of doing the country a great service. Practical shipping men are willing to give the Emergency Fleet corporation the advantage of their experience in ship operation and advise as to the types of ships needed.

IN explanation of the wooden ship situation, Vice President Piez of the Emergency Fleet corporation said:

"The limitations which the board of trustees have imposed on the construction of additional wooden vessels have grown, first, out of the fact that we have not received authorization for further expenditures from congress, and second, out of the fact that all the wooden vessels and all of the steel vessels contracted for on the Great Lakes are below 4000 deadweight tons in capacity and that we will have, upon the completion of our wooden ship and Great Lakes program over 1100 small vessels—altogether too many to serve the limited needs which we have for this class of vessels in normal times."

The designing and building of ships is not entirely dissimilar to other arts. Success rests largely in making improvements and never being content with those improvements. A ship, first of all, should be able and capable of transporting a cargo, in other words, seaworthy. In the second place no superabundance of material must be used in her construction and the vessel must earn profits for her owners. The rush with which many of the merchant ships were turned out by American yards during the past year has made it impossible at times to keep all these matters in mind. The end of the war should bring about a great change for the better.

Comparative Efficiency of Various Types of Ships

1—Dimensions, ft.	250x37x18.6	330x45x24.6	410x53x30.5	490x61x36.4	570x69x42.3
2—Displacement, tons	3,031	6,525	11,520	18,360	27,330
3—Draft	16 ft. 7½ in.	20 ft. 9½ in.	24 ft. 4½ in.	27 ft. 11 in.	31 ft. 7 in.
4—Block coefficient	.69	.74	.76	.77	.77
5—Service horsepower	1,258	1,935	2,540	3,230	4,080
6—Weight of vessel	1,152	1,934	3,260	5,234	7,515
7—Initial cost of vessel	£26,700	£44,700	£66,800	£104,900	£153,700
8—Net tonnage	700	1,660	3,210	5,400	9,780
9—Crew	24	33	46	56	65
10—Number of derrick systems:					
Yardarm	1	2	7	11	12
Swinging	4	6	2	...	...
11—Gross deadweight	1,879	4,591	8,260	13,126	19,815
12—Coal consumed per voyage, tons	389	566	754	978	1,257
13—Stores, fresh water and feed water, tons	61	90	121	161	198
14—Net cargo deadweight	1,388	3,885	7,356	11,987	18,362
15—Days on run	15.15	15.15	15.15	15.15	15.15
16—Days in port	2.37	4.15	6.75	8.95	13.09
17—Number of runs per annum	20.83	18.92	16.65	15.15	12.91
18—Total cargo per annum, tons	28,910	73,500	122,500	181,600	237,000
19—Total coal per annum, tons	8,102	10,710	12,550	14,820	16,228
20—Cargo transported per annum—Initial cost of vessel	1.082	1.643	1.834	1.731	1.542
21—Cost of operation per annum:					
22—Brokerage and management, 9d per ton	£1,084	£2,757	£4,594	£6,810	£8,888
23—Loading and discharging, 1s 6d per ton	2,168	5,514	9,188	13,620	17,776
24—Coal, oil, etc., at 12s per ton	4,861	6,426	7,530	8,892	9,732
25—Tonnage dues at 1s 3d per ton	913	1,965	3,345	5,120	7,904
26—Wages and provisions	2,017	2,772	3,865	4,705	5,460
27—Depreciation, insurance, repairs (1-7th initial cost)	3,819	6,393	9,543	14,986	21,964
28—Total outlay	£14,862	£25,827	£38,065	£54,133	£71,729
29—Profit to give 20 per cent on initial cost	£5,436	£8,950	£13,360	£20,980	£30,730
30—Rate per ton to give 20 per cent gross profit	14s	9s 5½d	8s 4¾d	8s 3¼d	8s 7¾d
31—Efficiency	.865	.785	.692	.629	.536

The above conclusions were drawn by John Anderson, an English engineer. He believes the ideal tramp cargo carrier to be a vessel from 380 to 400 feet long with a speed of 9 to 9½ knots. He also contends that the average cargo carrier does not attain 60 per cent of the efficiency it should.

Size of Ships Favored by British Owners

The vessels, under construction in the United Kingdom, are here classified according to tonnage.

Gross tonnage.	Steam.	Sail.
100 and under 500 tons	18	5
500 and under 1000 tons	16	4
1000 and under 2000 tons	25	1
2000 and under 3000 tons	41	.
3000 and under 4000 tons	44	.
4000 and under 5000 tons	14	.
5000 and under 6000 tons	139	.
6000 and under 8000 tons	36	.
8000 and under 10,000 tons	27	.
10,000 and under 12,000 tons	4	.
12,000 and under 15,000 tons	6	.
15,000 and under 20,000 tons	1	.
20,000 and under 25,000 tons	2	.
Total	373	10

U. S. Yard Investment $200,000,000

Shipping Board Has Huge Sum Involved in Ship Plants—Liquidation Will Furnish Difficult Problem—Peace Checks Expenditures

INVESTMENTS of the federal government in shipyards and shipping plant facilities, exclusive of naval, today total $200,000,000 in round figures. Of this amount the investment at the large Hog Island yard, Philadelphia, equals about one-third. While the greater portion of the so-called investments was made in shipyards proper, some of the money went into factory plants for fabricating ship plates and for manufacturing boilers, engines and equipment machinery for merchant vessels. Over one-third of the total was invested in constructing homes for workmen and extending electric and other rail lines to transport workmen to the various yards.

While these sums are classed as investments they really were made in the nature of loans or advances. Provision was made in the contracts whereby the government would ultimately be paid back or the property sold after peace to private interests at a fair peace valuation. In but one instance does the government own a shipyard outright. This is the plant located at Wilmington, N. C., and operated by the Carolina Shipbuilding Co. for building steel ships. The Wilmington yard was not completed at the end of the calendar year 1918, but it was estimated by the Emergency Fleet corporation that the total investment made there would be $2,000,000.

MANY of the commitments for boiler plants and for factories to manufacture equipment machinery will not be fulfilled. After the signing of the armistice the Emergency Fleet corporation began cancelling contracts and these cancellations are still proceeding. At the time of making its annual report to congress, the corporation planned to invest $10,500,000 for Scotch boiler plants and steel fabricating shops. Since making that report, however, the bulk of this item of investment has been wiped off, contracts cancelled, and the commitments charged up to profit and loss. The greater portion of this investment was to have been made in the plant which the Barber Asphalt Co. was to construct in New Jersey. Approximately $2,900,000 was to have been invested in a boiler plant in connection with the Newport News Shipbuilding & Drydock Co., Newport News, Va.

Advances were made to 41 different yards by the Emergency Fleet corporation during 1918 to enable those plants to extend their yards. The corporation held a lien upon the property for the money so advanced. While these might also be counted among investments they have at this date been practically all closed out. The corporation was repaid by deducting the profits on the ships built for the government in these yards. The few advances which have not been entirely paid off will be met within the next few months. These advances cannot, therefore, be actually counted among the investments of the government.

How Gigantic Shipyard Expenses Were Divided

Of $3,000,000,000 *appropriated for merchant ship construction, only one-fifteenth or* $200,000,000 *has gone into plant investment.*

About one-third or $80,000,000 *was spent for transportation and housing projects, leaving* $135,000,000 *as the actual investment of the government in shipyards and plant facilities.*

The four steel fabricating yards took more than two-thirds of this $135,000,000, *less than one-third going into the expansion of private yards.*

Only one shipyard is owned outright by the government—the Carolina Shipbuilding Co. at Wilmington, N. C.

Most of the advances made to private yards have now been repaid from withheld profits.

Contracts in most cases provide for the government being paid back or for the sale of the property at a fair peace valuation.

Shipyard investments will not be extended but commitments for building drydocks and repair facilities are on the increase.

The armistice brought about the cancellation of federal obligations in financing construction of equipment plants.

Investments included sums advanced to shipyards, steel fabricating plants, drydocks, marine railways and for housing and transportation projects.

AT this date the government's investments in shipyards will not be extended. Investments made in equipment plants are being liquidated by cancellations. In another direction, however, the government's interest in merchant shipping other than in ships themselves is being extended. Commitments are being made for the construction of drydocks and repairing facilities at the various ports. The plan is to build three drydocks at Philadelphia, ten at New York, one at Baltimore and five at Boston. Negotiations are now pending. At Philadelphia it is intended to advance 70 per cent of the cost of these docks to a private agency which is to build, own and operate them. This investment will be paid back in 10 yearly installments, after which time the docks are to be owned outright, without investment lien, by the private agent.

That the Emergency Fleet corporation has been able to increase the shipbuilding facilities of the United States to such an enormous extent during the past year, without creating an investment obligation greatly in excess of $200,000,000, speaks well for its executive management. The government has appropriated approximately $3,000,000,000 for merchant ships, and but one-fifteenth of this went into plant. In comparison with the war department, for which congress appropriated billions to raise an army, the work shows up well. The war department did invest large sums in the construction of cantonments, warehouses, embarkation depots, munition and clothing factories and other necessary plant equipment. And most likely the government will realize much less from these plant investments when they are liquidated, than it will realize from the plant investments made by the Emergency Fleet corporation.

Many of the investments made by the Fleet corporation, of a necessity, must be charged up finally to war risk and assumed by the government. At the yards it was necessary, for instance, to place armed guards, and

barracks for these guards were built. It was necessary to provide for fire protection. In connection therewith some facilities for small tools, etc., were built. The total cost of plant protection has been estimated by the Emergency Fleet corporation at $2,000,000, while $6,000,000 was put aside for small tools, fire protection and dredging.

The four fabricated steel shipyards and the five concrete yards are designated as agency plants. The fabricated steel yards are Hog Island, operated by the American International Shipbuilding Corp.; Submarine Boat Corp., Merchants Shipbuilding Corp., and the Carolina Shipbuilding Co. The Emergency Fleet corporation owns the land upon which the Carolina yard is located. The contractor has the option to purchase the land and the plant after the shipbuilding program is completed. In the case of the Submarine Boat plant, the government is the lessee of the land and is renting the plant at a fixed sum to the agent. The government has an option to purchase the real estate from the contracting company in the case of the Merchants plant and Hog Island. In case the government does not exercise its option to purchase, the contractor may purchase the improvements at an appraised valuation.

Investments in drydocks and marine railways may properly be classed as investments in shipping inasmuch as they are peculiarly aligned with the operation of ships in trade. Such investments on the part of the government are increasing daily and the sum total promises to be much larger next summer than at present.

Approximately $80,000,000 has been invested in projects which are but incidental to shipbuilding, and, while made for the purpose of facilitating the building of merchant ships, cannot properly be classed as investments in shipyards. These are the investments made in transportation lines and housing projects. The remaining total of a little less than $135,000,000 represents the total of investments today actually made in shipyards by the government.

OVER two-thirds of the strictly shipyard investments were made in the four steel fabricating yards, and less than one-third has been distributed in smaller investments made for the purpose of expanding private yards. The largest single investment in any private yard was that made at the plant of the New York Shipbuilding Corp., Camden, N. J.

Plant Investments Made by the Emergency Fleet Corporation

INVESTMENTS IN SHIPYARDS

Hog Island, Philadelphia	$63,300,000
Submarine Boat Corp., Newark, N. J.	17,000,000
Merchants Shipbuilding Corp., Bristol, Pa.	11,000,000
New York Shipbuilding Corp., Camden, N. J.	14,000,000
Carolina Shipbuilding Co., Wilmington, N. C.	2,000,000
Seattle Construction & Drydock Co., Seattle	6,000,000
Newport News Shipbuilding & Drydock Co., Newport News, Va.	550,000
Bethlehem Shipbuilding Corp. (Harlan)	141,000
Bethlehem Shipbuilding Corp. (Sparrows Point)	3,100,000
Bethlehem Shipbuilding Corp. (Union)	1,500,000
Newburgh Shipyards, Inc., Newburgh, N. Y.	550,000
Concrete shipyards	5,000,000

Note—Investment in the yard of the New York Shipbuilding Corp. would have amounted to $16,825,000, but a part of this extension was cancelled after the armistice, reducing the investment by $2,825,000. The concrete shipyards will be government owned and will cost $1,000,000 each to build. They will be located at San Diego, Cal.; Oakland, Cal.; Wilmington, N. C.; Mobile, Ala., and Jacksonville, Fla.

INCIDENTAL YARD INVESTMENTS

Small tools, fire protection, dredging	$6,000,000
Plant protection	2,000,000
Total investment in shipyards	**$132,141,000**

INVESTMENTS IN STEEL FABRICATING PLANTS

Ralston Steel Car Co., Columbus, O.	$354,000
Standard Steel Car Co., Pittsburgh	900,000
Baltimore Car & Foundry Co., Baltimore	750,000
John Brennan & Co., Detroit	233,000
Pressed Steel Car Co., Pittsburgh	267,000
Midland Bridge Co., Kansas City, Mo.	375,000
Total	$2,879,000

INVESTMENTS IN DRYDOCKS

Bethlehem Shipbuilding Corp.	$1,250,000
Alabama Dry Dock & Shipbuilding Co., Mobile, Ala.	560,000
Terry & Britain, Savannah, Ga.	577,000
Terry & Britain, Jacksonville, Fla.	572,000
Beaumont Shipbuilding & Dry Dock Co., Beaumont, Tex.	350,000
Galveston Dry Dock & Construction Co., Galveston, Tex.	675,000
Jahncke Shipbuilding Co., Madisonville, La.	700,000
Services, Wm. T. Donnelly, New York	275,000
George Leary Construction Co.	1,365,000
Total	$6,324,000

INVESTMENTS IN MARINE RAILWAYS

Cumberland Shipbuilding Co., Portland, Me.	$100,000
Crowninshield Shipbuilding Co., South Somerset, Mass.	100,000
Newcomb Lifeboat Co., Hampton, Va.	100,000
R. S. Salas	100,000
Terry & Britain, Savannah, Ga.	100,000
Tampa Dock Co., Tampa, Fla.	100,000
Henderson Shipbuilding Co., Mobile, Ala.	100,000
Barnes & Tibbetts, Alameda, Cal.	110,000
Crandell Services	68,500
Total	$878,500
Total investments in ship plant facilities	**$142,222,500**

INVESTMENTS IN HOUSING PROJECTS

Atlantic Corp., Portsmouth, N. H.	$1,900,000
Newport News Shipbuilding & Dry Dock Co., Newport News, Virginia	4,880,500
New York Shipbuilding Co., Camden, N. J.	9,525,000
Pusey & Jones, Gloucester, N. J.	2,470,000
Bethlehem Shipbuilding Corp. and Pusey & Jones, Wilmington, Del.	3,000,000
Bethlehem Shipbuilding Corp., Sparrows Point, Md.	4,500,000
Chester Shipbuilding Co., Chester, Pa.	3,250,000
Texas Shipbuilding Co., Bath, Me.	750,000
Merchants Shipbuilding Co., Bristol, Pa.	5,380,000
American International Shipbuilding Co., Philadelphia	10,031,000
Sun Shipbuilding Co., Chester, Pa.	3,560,000
J. M. Standifer Construction Co., Vancouver, Wash.	350,000
Bayles Shipbuilding Co., Port Jefferson, N. Y.	300,000
American Shipbuilding Co., Lorain, O.	1,260,000
Merrill Stevens Co., Jacksonville, Fla.	650,000
Westinghouse Electric & Mfg. Co., Essington, Pa.	1,200,000
Terry Shipbuilding Co., Savannah, Ga.	750,000
Traylor Shipbuilding Co., Cornwells Heights (for tents), Pa.	5,000
Pensacola Shipbuilding Co., Pensacola, Fla.	660,000
Pacific Coast Shipbuilding Co., Suisun Bay, Cal.	750,000
Detroit Shipbuilding Co., Wyandotte, Mich.	385,000
Manitowoc Shipbuilding Co., Manitowoc, Wis.	560,000
Groton Iron Works, Groton, Conn.	1,200,000
Newburgh Ship Co., Newburgh, N. Y.	900,000
Louisiana Shipbuilding Co., Slidell, La.	50,000
	$58,266,500
Reserve 15 per cent.	8,739,975
Expenses	1,000,000
	$9,739,975
Total	$68,006,475

INVESTMENTS IN TRANSPORTATION LINES

Texas Shipbuilding Co., Bath, Me.	$170,500
Bethlehem Shipbuilding Corp., Fore River, Quincy, Mass.	164,000
Staten Island Shipyards, Staten Island, N. Y.	645,000
Foundation Co., Kearny, N. J.	39,586
Submarine Boat Co., Newark, N. J.	821,739
New York Shipbuilding Co., Camden, N. J.	1,240,680
Pusey & Jones Co., Gloucester, N. J.	215,947
American International Corp., Hog Island, Pa.	3,105,000
Chester and Essington plants, Pa.	1,225,360
Baltimore Shipyards, Sparrows Point, Md.	989,638
Newport News Shipbuilding & Dry Dock Co., Newport News, Va.	300,000
Terry Shipyards, Savannah, Ga.	4,416
Tacoma Shipyards, Tacoma, Wash.	232,400
Portland Railway & Light Co., Portland, Oreg.	171,000
Moore Shipbuilding Co., Oakland, Cal.	9,675
Bethlehem Shipbuilding Co., Oakland, Cal.	465,600
Mobile Light & Railway Co., Mobile, Ala.	60,000
Duluth Street Railway, Duluth	100,000
Lone Star Shipbuilding Co., ferry equipment, Beaumont, Tex.	3,250
Tidewater Power Co., Wilmington, N. C.	350,000
Lake Shore & Michigan Southern R. R. Co.	6,000
Municipal Railway System, Seattle	377,000
Arthur W. Horton, Portsmouth, N. H.	4,000
Total	$10,700,791
Total of all investments	**$210,929,766**

Tribute from England

WHAT W. R. Gray and Edward F. Clarke, of the North of Ireland Shipbuilding Co., think of American shipbuilding practice:

"If British methods and appliances had been less traditional and more modern, the vexed question of the dilution of labor in the steel working departments in the old country would have offered less difficulty and would probably have been found as easy of solution, comparatively speaking, as was the case in the engineering trades when the overwhelming demands for munitions of war opened the eyes of all to the possibilities of the case.

"Every shipbuilder in the United States appears to have made it his rule to launch three vessels per year from each berth and some are actually doing it at the present time.

"To the question, what will America do with the large mercantile fleet she is building when the necessities of the great war have been overcome? the reply of the American is that a great carrying trade is being planned between North American ports to the east and west coasts of South America, Central America, Russia, China, Japan and Australia. Doubtless the enormous expansion of the world's trade which must take place when the last and greatest of the world's wars has ended, will provide ample scope for American enterprise, and at the same time leave our own shipbuilding and carrying trades in a stronger position, than they enjoyed before the war.

"It might be as well if shipbuilders, and also the shipbuilding trade unions in Great Britain, were to pay very close attention to what is being done on the other side of the Atlantic, and not to be chary in ruthlessly scrapping old practices, hoary traditions, and out-of-date methods and machinery where the advantages to be gained are obvious. British manufacturers in other fields of industry have found it to their advantage (some times after long hesitation that nearly cost them their best markets) to learn something from the American manufacturer and why not the British shipbuilder?"

Ocean Rates Reduced

WHAT is thought of the order issued by the shipping board early in January reducing ocean freight rates?

The American Exporters & Importers' association telegraphed J. H. Rosseter, director of operations:

"You state rates are effective immediately, but we would remind you that at our interviews we pointed out that all reductions made must become effective on all shipments since Dec. 1, in order to cover freight loaded on steamers recently dispatched or which have not yet left port. Otherwise the relief will not be what the situation demands, as shippers must be placed on an equal footing with their foreign competitors who have enjoyed reduced rates for weeks past. Unless a reduction is made in rates covering goods recently dispatched from New York, as pointed out to you, all shipments subject to rejection on account of the present disturbed condition of markets abroad will be refused because of similar goods being enroute from foreign markets at lower rates of freight."

A prominent New York ship broker said:

"Nothing is so bewildering as to try and study out the aims of our government officials at Washington. Are they bent on destroying whatever remains of commerce by the exercise of inexorable and arbitrary powers? It now looks as though the thousands of tons of merchandise that have been held in this port for weeks in the hope of securing tonnage for South America, will have to remain here all winter, unless something takes place to change the position of vessel owners. A few months more of government rule will drive every vessel owner out of business.

"It is easy to understand why there has been a reduction in freights on the Pacific coast, where the Japanese are coming into keen competition with the American shipping interests, but over on this side where such a condition does not exist, the action of the United States shipping board is hard to divine."

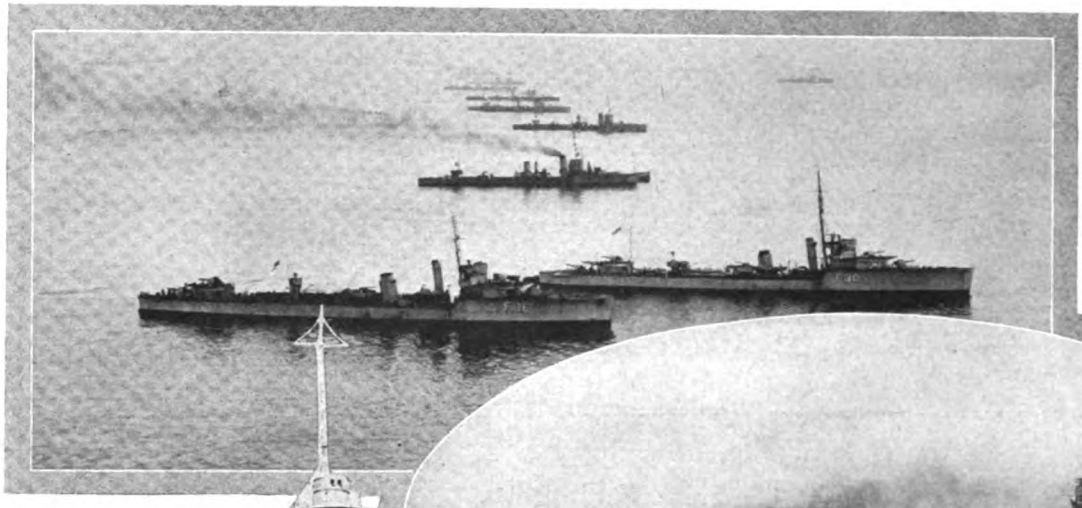
Here the government invested $14,000,000, approximately, for the purpose of building extensions in order to accommodate the construction of large merchant ships for the Emergency Fleet corporation. The investment made in extending the yard of the Seattle Construction & Drydock Co., Seattle, Wash., was estimated by officials of the Fleet corporation at $6,000,000, while $3,100,000 was invested in extensions to the Sparrows Point yard of the Bethlehem Shipbuilding Corp., $1,500,000 being invested in extensions to the Union yard of the same corporation, and $1,000,000 each in the five concrete shipbuilding yards. The operating agents and locations of the concrete yards are: the Scofield Engineering Co., San Diego, Cal.; San Francisco Shipbuilding Co., Oakland, Cal.; Liberty Shipbuilding Co., Wilmington, N. C.; Fred T. Ley & Co., Mobile, Ala., and A. Bentley & Sons, Jacksonville, Fla. Smaller sums were similarly invested in extensions to the yards of the Newport News Shipbuilding & Drydock Co., Newport News, Va.; the Newburgh Shipyards, Inc., Newburgh, N. Y., and the Harlan plant of the Bethlehem Shipbuilding Corp.

The Emergency Fleet corporation expects to realize upon the ultimate liquidation of all the investments made in extensions to private yards. In every case it is provided that when the ships contracted for are completed the yard owners may exercise an option to purchase the extensions, made with government money, at a fair valuation. If this option is not exercised the government has authority to scrap the extension and realize upon it in this manner. The concrete shipyards are being built upon a plan similar to that followed in the building of the fabricated steel yards. The agents may exercise an option to purchase the plants upon a fair valuation when the ship construction contracts have been concluded.

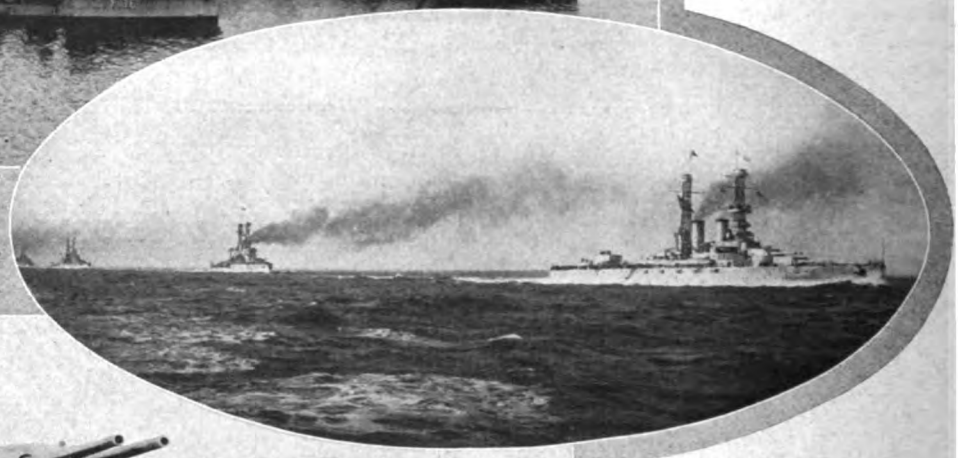
INVESTMENTS made in steel fabricating factories are protected in the same manner as are the investments made in private shipyard extensions. When a fabricating shop, which is to make material for the steel fabricating shipyards, was not equipped to undertake the contract upon the scale demanded by the government and was unable to raise the capital to build extensions, the Emergency Fleet corporation advanced the money to build such extensions. Approximately $3,000,000 was invested in this manner, the largest single investment, $900,000, being made in the construction of shop extensions to the factory of the Standard Steel Car Co., Pittsburgh. A total of $750,000 was invested at the Baltimore Car & Foundry Co.

Had the war lasted six months longer the government's investments in shipyards, steel fabricating shops and equipment machinery factories would probably have been twice the amount they are today. The rapidity with which the Emergency Fleet corporation is disposing of these investments seems to indicate clearly the desire of the officials in charge of the shipbuilding program not to commit the government to a policy of owning and operating shipbuilding yards whatever may be the ultimate policy adopted in regard to the ownership and operation of American merchant ships.

When Germany Yielded the Sword at Sea



It was a proud moment for England as it was, indeed, for all the allies, when British and German destroyers lay at anchor, the day Germany surrendered her ships.



The "mystery ship" of the British navy—one of that nation's latest type of fighting craft.

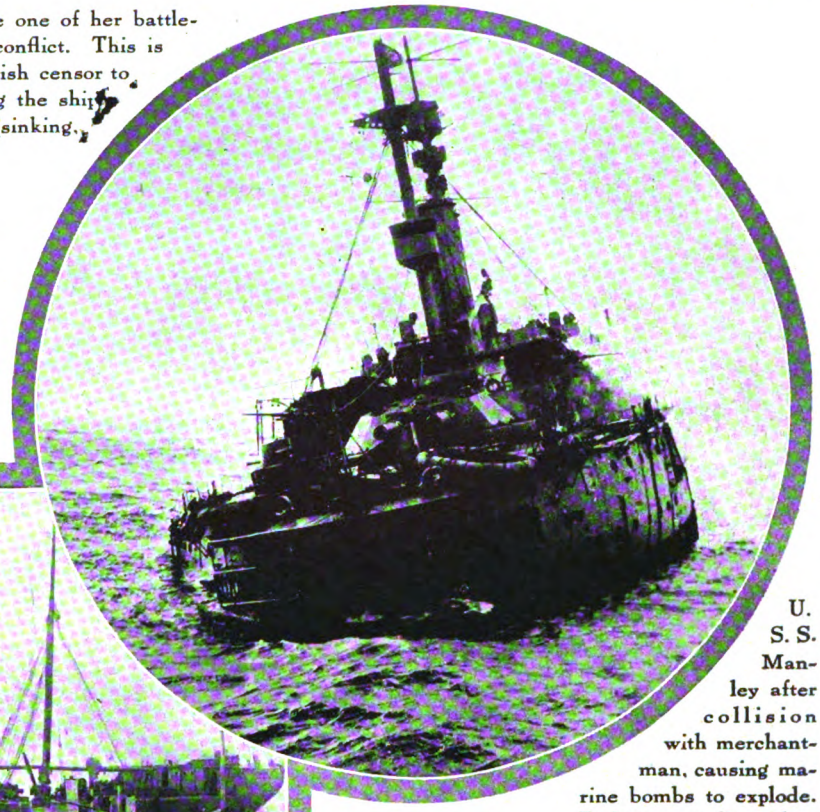
The George Washington, bearing President Wilson to the peace conference, had a powerful escort when reaching the French coast at Brest.

One of the secrets of Great Britain's navy revealed at the conclusion of hostilities is a type of powerful battle cruiser, shown in the photograph above. This ship is H. M. S. Abercrombie, having a battery of 16-inch guns in the fore turret and extra heavy armor at the water line as a protection against submarines.

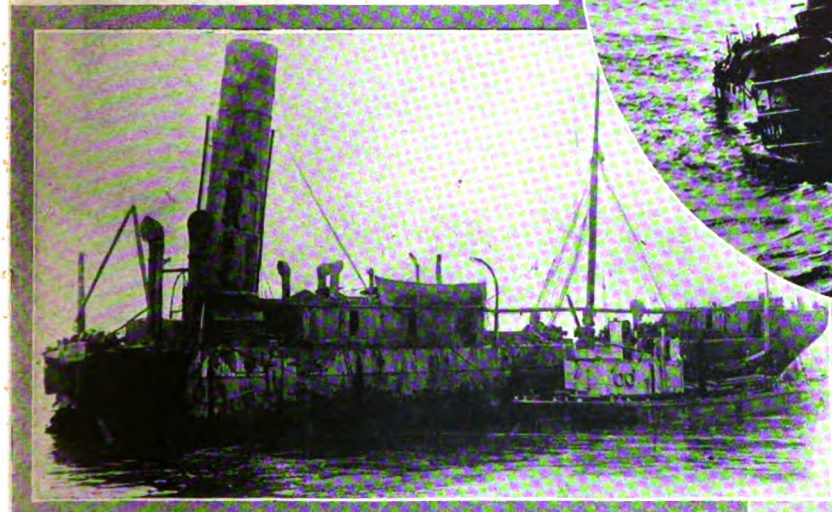
At the right is the Friedrich der Grosse, flying the flag of Rear Admiral Von Reuter, snapped by a member of the Royal Air Force.

Recalling Last Days of Freedom's Fight

It was Great Britain's misfortune to lose one of her battleships just before the end of the great conflict. This is the first photograph released by the British censor to be received in the United States showing the ship lurching to port a few minutes before sinking, the victim of a submarine or mine



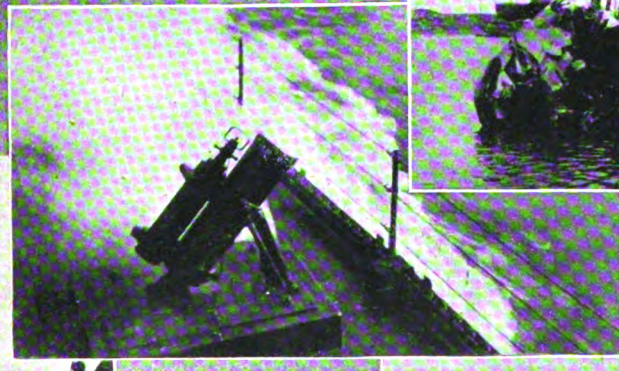
Millions of dollars worth of ships sunk by submarines may be raised and restored to service. The salvage section of the British navy has raised the steamship Araby after she rested 18 months on the bottom off the French coast. The ship was broken in half but the ends were temporarily patched up with wood and concrete bulkheads



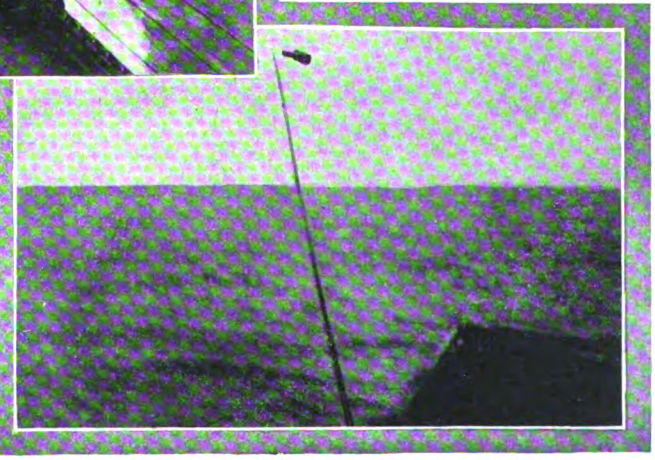
U. S. S. Manley after collision with merchantman, causing marine bombs to explode. Eighty-seven lives lost

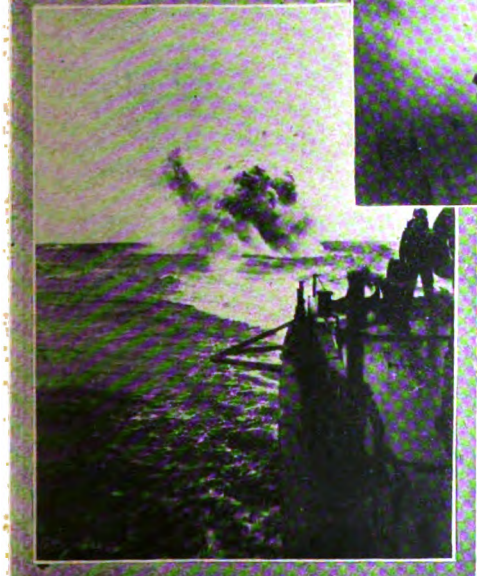
There is no guesswork as to the explosion of the marine bomb, as the photo shows

Marine bomb gun in action



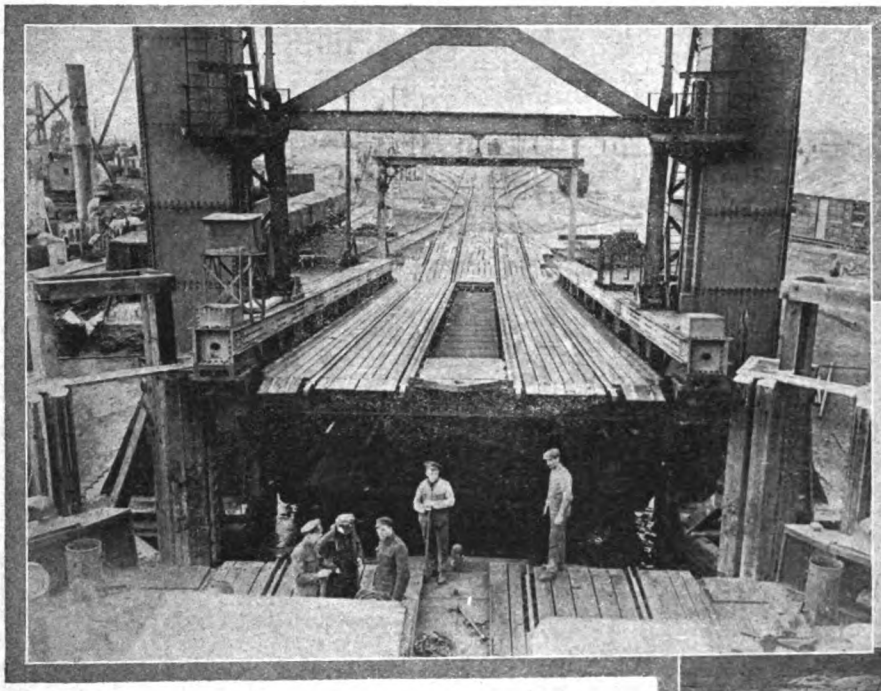
Marine bomb in midair





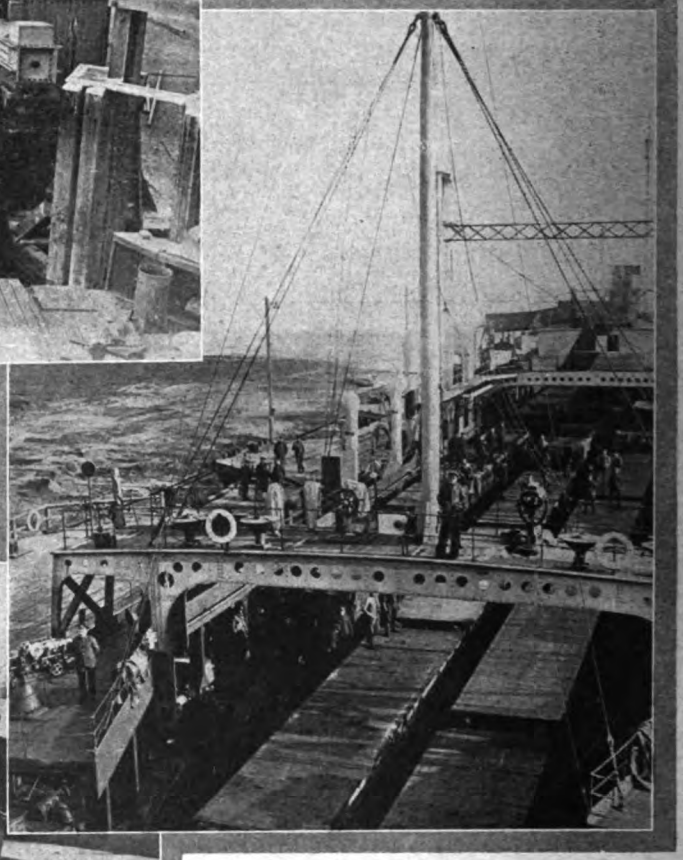
The mallet-shaped bomb is hurled upward at an angle of about 45 degrees from the deck toward the submarine, and explodes as it buries itself in the water

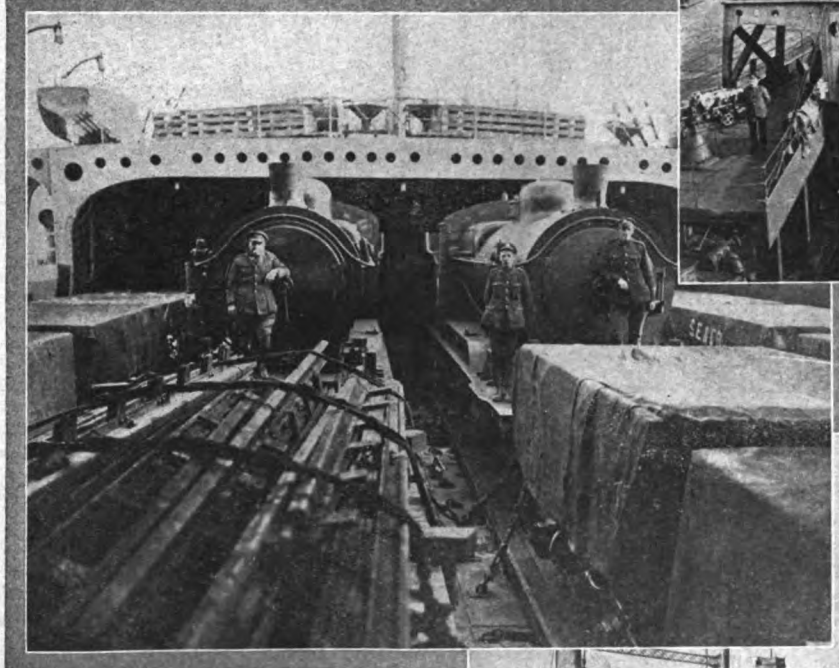
How Britain Bridged Channel to France



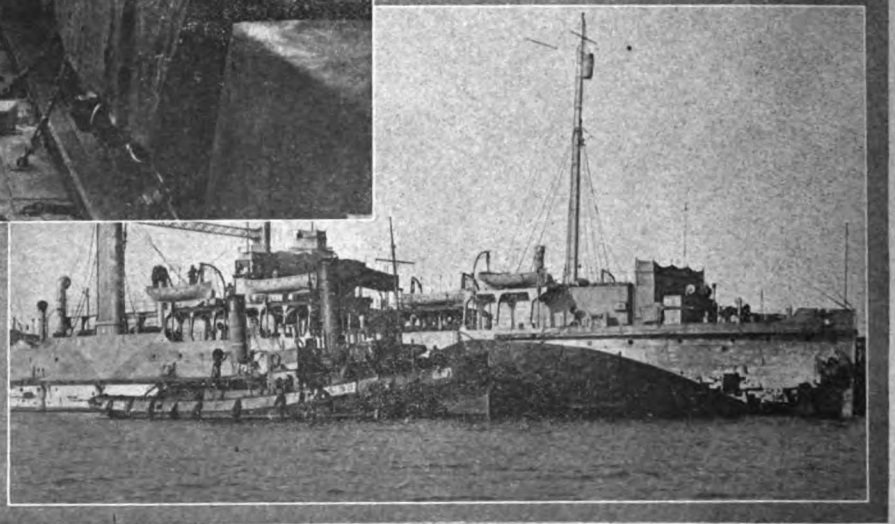
One of the secrets of the war just disclosed is how Britain shipped trainloads of materials from her factories direct to the battle line without reloading. Three ferries, each with a capacity of 54 fully loaded British railway cars, were used in the service

Here at Richborough, on the coast between Ramsgate and Dover, the trains were run direct on the ferries. No attack was made on the terminal from either sea or air, so well guarded was the secret





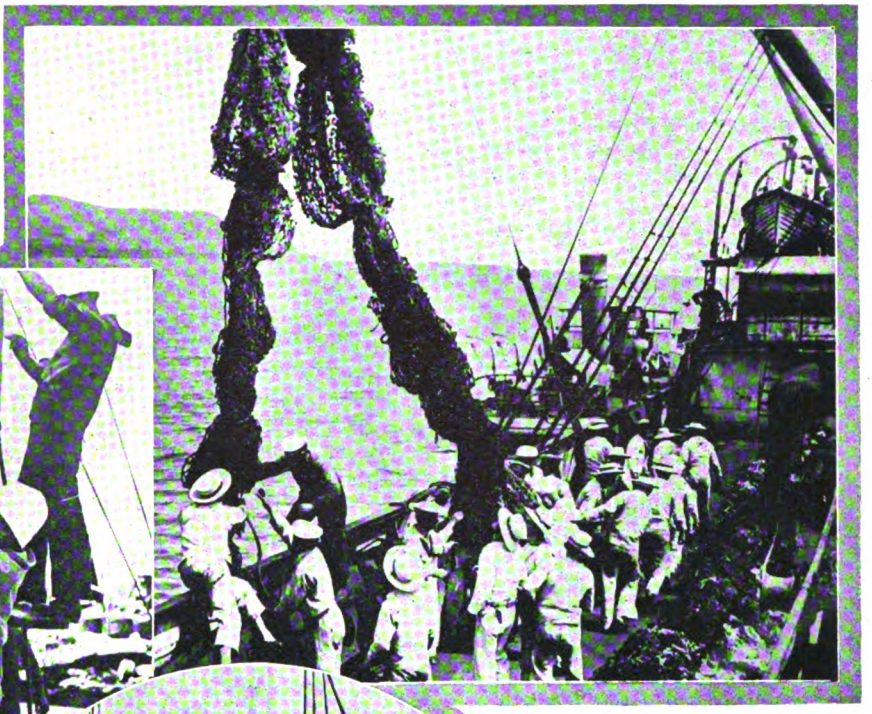
Looking down into the "well", it appears as though a section of a freight yard was being sent to sea.

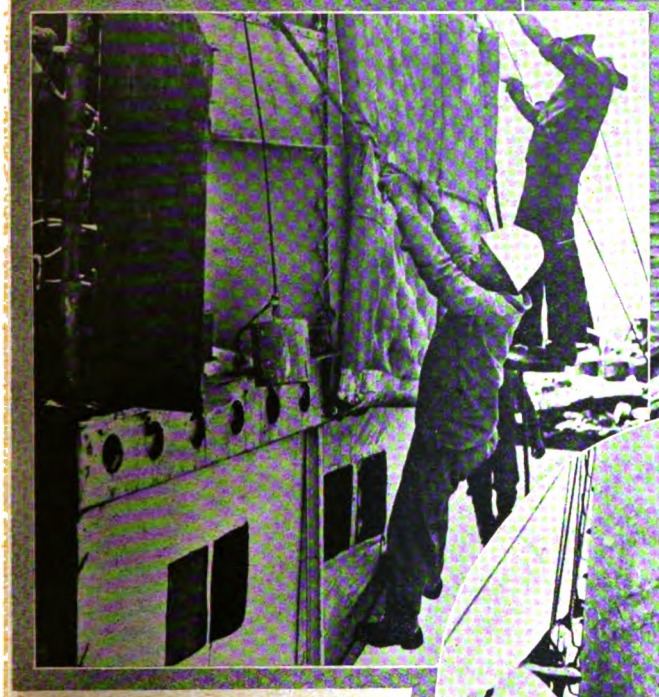


Tugs hauled the camouflaged ferries into position for their trips across the channel. Note the 12-pounder guns mounted on the fore deck. Once only was a ferry attacked in the channel and she beat off the submarine

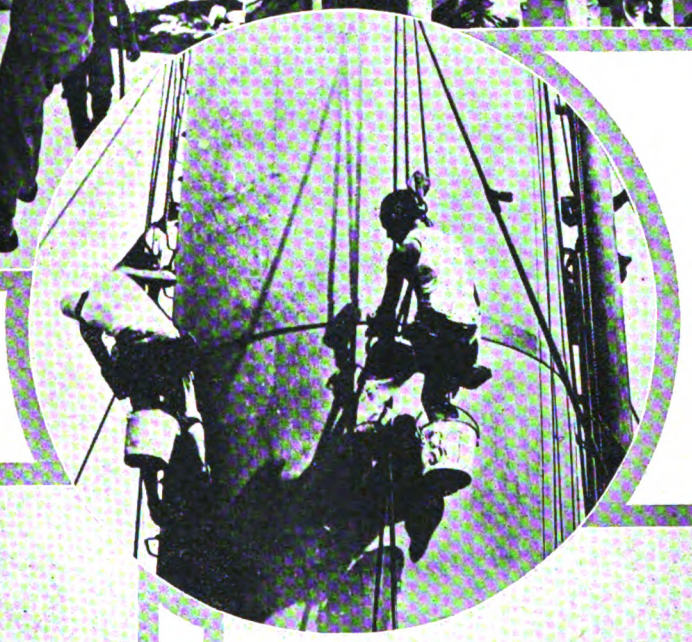
Mars Removing His Traps and Masks

Now that the submarine menace is over, warships and merchantmen are shedding their coats of camouflage, light steel nets spread to snare U-boats are being hauled from the depths, and patrol ships are being called in from all quarters of the globe.

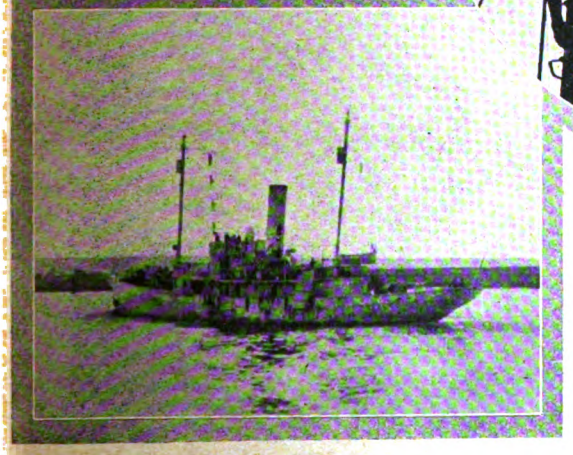


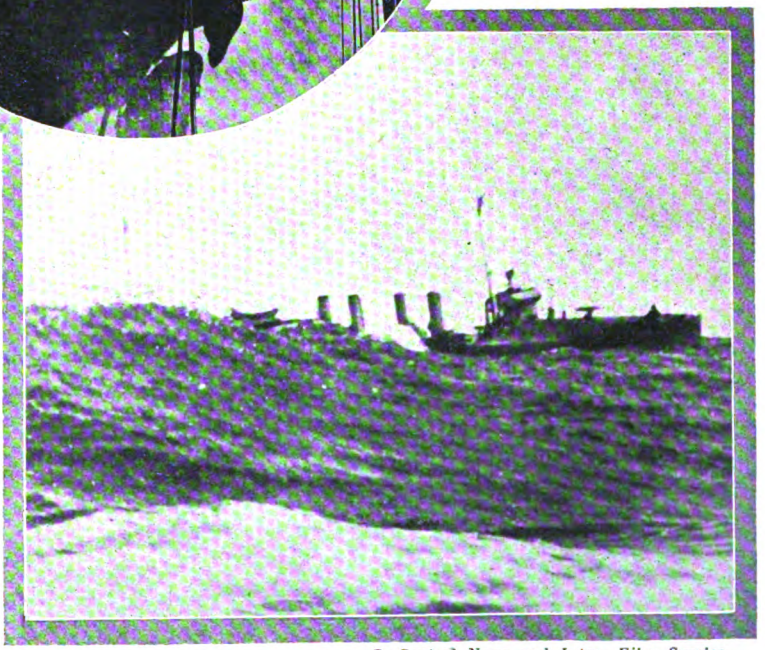


Vincent Astor's yacht Noma on patrol duty in the war zone. The photograph was made by Herman Whitaker, the author, a member of her crew.



Miles of steel nets placed at vulnerable points about the British Isles are now being removed. While all manner of devices were suggested to thwart or catch Germany's submarines, these nets served their purpose and many submersibles were trapped in the broad meshes.





An American destroyer (at the right) in a rough sea. This sturdy little craft has the record of running down and sinking a submarine in the closing days of the war.

High Wages Raise Shipping Costs

American Ship Owners Find Operating Costs Are Handicap to Effective Competition—New Wage Scale Recently Adopted

SO long as overseas freights remain abnormal the question of seamen's wages will continue of secondary importance. But the maintenance of abnormal freights checks the resumption of foreign trade and places that much of a burden on the restoration of American industries to the prosperity they deserve and are capable of attaining.

Abnormal freights, it is true, are due mainly to the shortage of tonnage and the kind of tonnage which is available for commercial uses. It is necessary to operate ships in trades for which they are not suited, and when this difficulty is coupled with abnormal wages to the crews the result is decidedly to the disadvantage of foreign trade. American shipping people are today watching with apprehension the changes which are taking place in the British merchant marine. The rapidity with which that marine is returning to normal, increases the disadvantages under which American vessels are operating. The competition on the Pacific coast with the Japanese is even worse.

Despite this outlook, little encouragement is seen for American operators. Under the operating agreement proposed by the shipping board wages on government-owned vessels will be paid by the government. That is well enough where merchant ships are owned by the government, but a large proportion of these vessels are owned by private operators and many of these are being released and returned to their owners. The minute a requisitioned ship is released the wage question becomes of fundamental importance.

The United States shipping board has appealed to the American shipping world to continue the wage adjustments made during the war. The board has asked for co-operation "in continuing existing arbitration agreements and existing adjustment agencies, and in maintaining existing methods of adjusting controversies respecting wages and working conditions; in maintaining control over marine and dock industrial relations; and in maintaining the status quo with respect to such industrial relations." The reasons for this appeal were:

The emergency in the shipping industry created by the war cannot be deemed to have passed, while the depleted tonnage of the world available for the purpose of the safe return of our troops from overseas, for the maintenance of our forces still overseas, and for the supply of food and necessities of life to Europe is still taxed to the utmost.

The government requirements still demand the uninterrupted operation of all organizations and classes of owners and operators of vessels and harbor marine equipment, and all organizations and classes of licensed officers and marine and dock labor.

Meanwhile, the Marine Engineers' Beneficial association and the American Association of Masters, Mates and Pilots have asked for another advance in

THESE NEW SAILORS, TYPICAL OF THE YOUNG MANHOOD NOW ENTERING AMERICA'S GROWING MERCHANT MARINE, HAVE LEFT THE SCHOOL SHIP FOR ACTIVE SEA SERVICE

wages and the incorporation of the war bonuses in the schedule of basic wage. Ship operators say it was possible to pay the wages in effect during war because the freights received were high but it would be impossible to pay such wages on the normal routes, while ships could not operate on the low-return routes.

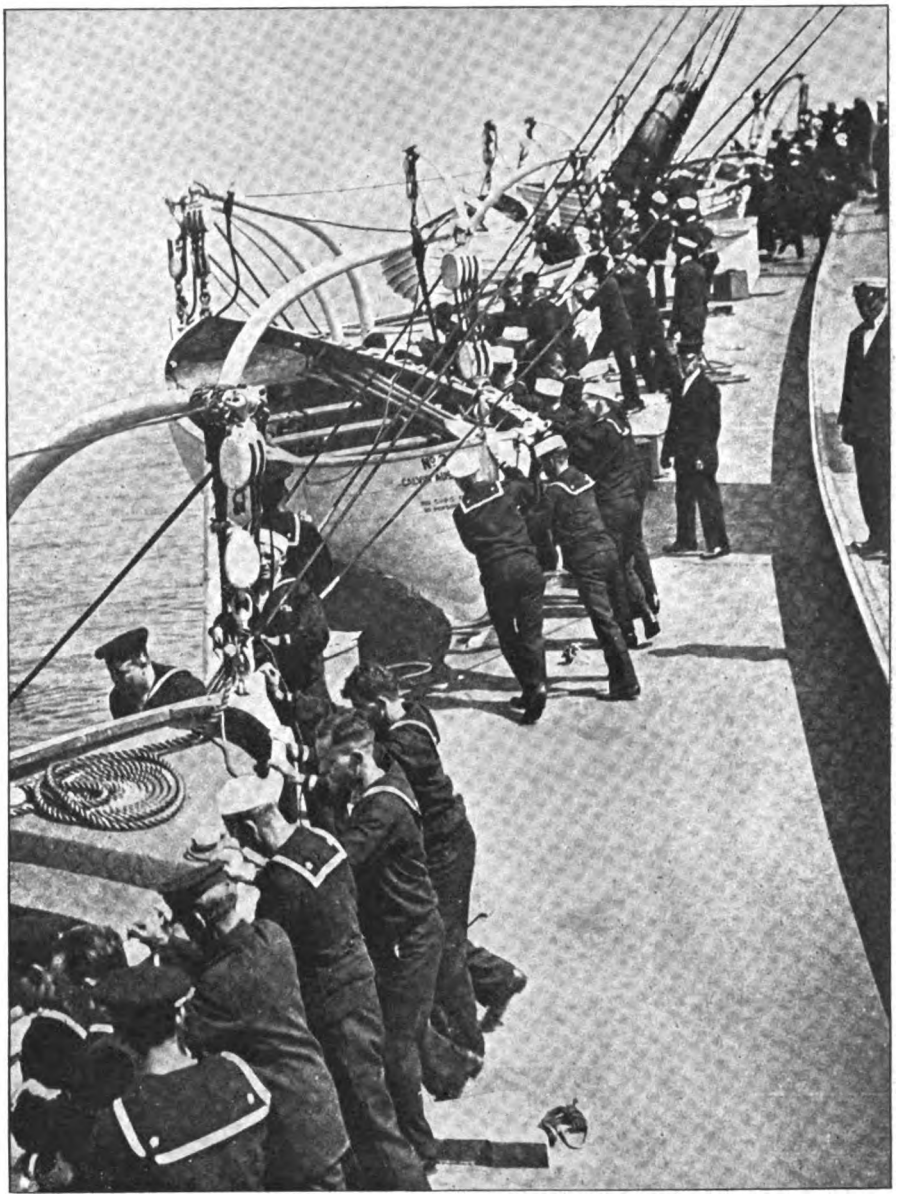
SHIP operators have not insisted on a reduction in the basic wage scale, although they realize that a substantial reduction would be necessary to bring American wages to anything like a parity with British wages. The operators have asked that all war bonuses be discontinued and that overtime be eliminated. They argue:

"What little discipline there was remaining prior to the payment for overtime has been destroyed, and the tendency now in almost every case is to endeavor to create conditions which will permit of overtime demands. Overtime demands have many times been most unreasonable, due largely to lack of understanding of the regulations by the crews, but even in cases of unreasonable demands failure to receive payment for improperly charged overtime has been the basis of complaints which in several instances have delayed vessels and led to friction and dissatisfaction. Overtime collected by assistant engineers in some cases brings their wages above that of the chief engineers and this creates a spirit of dissatisfaction on the part of the chief engineers. The same regarding overtime is true in the case of the chief officers and masters.

"Now that the war hazards have been removed, we respectfully submit that the wages should revert to the basic wage and classification. Even on this basis the American steamer is at a decided disadvantage in competition with foreign vessels on which lower scales of wages in all cases obtain. Further it is reasonable to anticipate that a reduction in the wages of the officers and seamen on these foreign ships will take place in the near future. Two 9000-ton sister steamers built in the same shipyard and now being operated in the transatlantic trade, one under the British flag and the other under the American flag, give a discrimination in either case of 11 per cent; on the basis of basic rate, plus bonus in each case, the discrimination against the American vessel in wage costs is 40 per cent."

The bonus was 50 per cent on war zone trades and 25 per cent on the Atlantic coast. By incorporating these bonuses into the regular wage the seamen would have a discriminating scale of wages for coastwise and for transoceanic trade. This the operators object to.

"The requirements of both services," they say, "while similar in some respects have their respective dissimilarities which tend to balance each other, and the choice of the one or the other is largely a matter of personal taste. Any differential in wages between the two services would result in dissatisfaction and friction, as vessels are often transferred from one service to the other, and if a lower scale is to prevail in the coastwise trade this would mean a reduction in wages when a foreign-going steamer is transferred to the coastwise routes. The result would undoubtedly hamper operations and delay vessels, as officers and crews would leave rather than submit to any reduction in pay. To engage new men not familiar with the vessel would lead to a consequential loss in operating efficiency."



LIFE-BOAT DRILL IS AN IMPORTANT PART OF THE APPRENTICES' TRAINING—THEY PRACTISE TWICE DAILY UNTIL THEY GAIN EXPERTNESS

On Dec. 21, 1918, the shipping board discontinued the war bonuses to all sailors, firemen, stewards, cooks and other members of a ship's company operating in the war zone, excepting the licensed deck and engine-room officers. The bonuses to these licensed officers are to continue pending the decision of the wage adjustment board on the petition of the unions.

DISCREPANCIES between the British and American wages come to be felt keenly with the gradual return to normal conditions in shipping. According to the decree of the labor adjustment board the wages of the entire crew on an American ship are fixed. The British wage adjustment rendered a little more than a year ago, did not affect the wages of the masters or engineers. In the

Wages in Competitive Merchant Marines Compared

American

Wages prevailing prior to entry of United States into war:

Master	$150 to $300	Chief engineer	$175 to $250
Chief mate	130 to 190	First asst. engineer	130 to 190
Second mate	120 to 170	Second asst. engineer	120 to 170
Third mate	110 to 150	Third asst. engineer	110 to 150

Wages Effective Jan. 1, 1919:

Vessels classified as follows:

Classes	Single Screws, Tons	Twin Screws, Tons
A	Over 20,001	Over 15,001
B	12,001 to 20,000	9001 to 15,000
C	7501 to 12,000	5501 to 9000
D	5001 to 7500	3501 to 5500
E	Below 5001	Below 3501

Officers' wages on vessels of these classes:

	A	B	C	D	E
Masters	$375.00	$337.50	$325.00	$312.50	$300.00
Chief engineers	287.50	268.75	250.00	231.25	212.50
First officers and first assistant engineers	206.25	200.00	193.75	187.50	181.25
Second officers and second assistant engineers	187.50	181.25	175.00	168.75	162.50
Third officers and third assistant engineers	168.75	162.50	156.25	150.00	143.75
Fourth officers and fourth assistant engineers	150.00	143.75	.....	.....	.....
Junior engineers	125.00	.....	.....	.....	.....
All chief wireless operators					$110.00
All assistant wireless operators					85.00

Wages for other than officers adopted by the United States shipping board, May, 1918:

Deck department:		Deck boy	40.00
Carpenter	$90.00	Engine room:	
Carpenter's mate	85.00	Oiler	$80.00
Boatswain	85.00	Water-tender	80.00
Boatswain's mate	80.00	Engine room storekeeper	80.00
Quartermaster	77.50	Fireman	75.00
Able seaman	75.00	Coal-passer	65.00
Ordinary seaman	55.00	Wiper	65.00

Steward's department:

Chief steward	$100 to $145	Second steward	$85
Chief cook	100 to 120	Butcher	85
Baker	95 to 105	Second baker	75
Second cook	85	Storekeeper	75

Note.—A bonus of 50 per cent was allowed for service in the war zone.

The shipping board on Dec. 30, 1918, ruled that there are to be no transatlantic or coastwise bonuses and no sliding scales.

British

Wages paid on British merchantmen: (Arbitration agreement made Nov. 23, 1917).

First mate	$102.19 to $131.39	Able seaman	55.96
Second mate	92.46 to 104.63	Ordinary seaman	34.07 to 41.37
Third mate	82.73	Engine room department:	
Deck department:		Donkeymen	$63.26
Carpenter	$68.13	Storekeeper	63.26
Boatswain	63.26	Leading fireman	60.83
Boatswain's mate	58.40	Greasers	60.83
Lamp trimmer	58.40	Firemen	58.40
Quartermaster	58.40	Trimmers	37.71 to 53.53

Note.—The arbitration agreement did not involve the pay of masters and chief engineers, these being subjected still to the free play of contracts. It has been estimated on authority, however, that the average pay of a master on the average British merchantman is $200 per month. On the large passenger vessels the pay of a master may run up to $500 or even $600 per month.

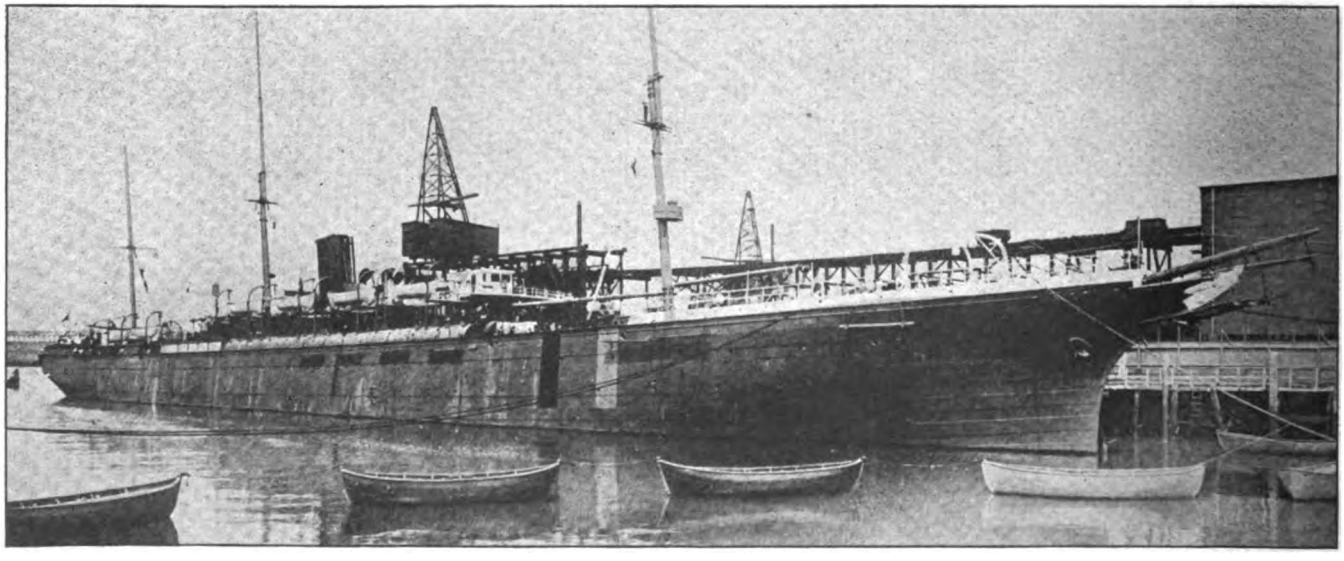
The average pay of a chief engineer on a British merchantman is $150, although it is not unusual that this officer receives $250 per month, varying according to the length of service and the class of service in which he is employed.

Japanese

	Prior to the war, 1914	Present wages
Masters	$50 to $100	$100
Chief mates	45	....
Second mates	35	....
Third mates	30	....
Chief engineers	60	$100
First assistant engineers	50	....
Second assistant engineers	40	....
Third assistant engineers	30	....
Quartermasters	25	....
Ordinary seamen	12	....

case of these merchant officers the freedom of contract prevails. But whereas an ordinary seaman on an American ship receives $55 per month, the British fixed that class of wage at $34.07 to $41.37, varying according to the class of service and the length of service. Advocates for higher wages on American ships have often pointed out that some British masters receive as much as $600 per month. This is true in the case of some specially large passenger liners and for a master long in service, but a wage of $200 is closer to the average, and some British masters receive no more than $100 per month for their services.

Competition on the Pacific is a more serious question. An ordinary seaman on a Japanese ship received but $12 per month in 1914. Since then his wage has advanced approximately 50 per cent, but the Japanese operators hold this abnormal and refuse to be-



YOUNG AMERICANS ARE BEING WON BACK TO THE SEA AND ARE LEARNING THE ANCIENT CRAFT IN THESE RECEIVING SHIPS—THE CITY OF BERLIN, FAMOUS TRANSATLANTIC LINER OF EARLIER DAYS, IS NOW A TRAINING SHIP

lieve that the new wage will continue for long. A master on a Japanese ship prior to the war may have received but $50 a month, although it is true that such a wage was a minimum. A wage of $200 for a Japanese master has been known to have been paid, but it was unusual.

Japanese crews are employed on individual contracts, instead of a fixed schedule. Many Japanese ships have been operated under charter by the shipping board. The charters provided that all overtime should be paid for "at the current rate." This resulted in giving the Japanese seamen the rate of overtime prevailing in the American merchant marine. It is believed the experience of the crews under these circumstances may lead them to demand higher wages of their own operators when the ships are returned to their owners.

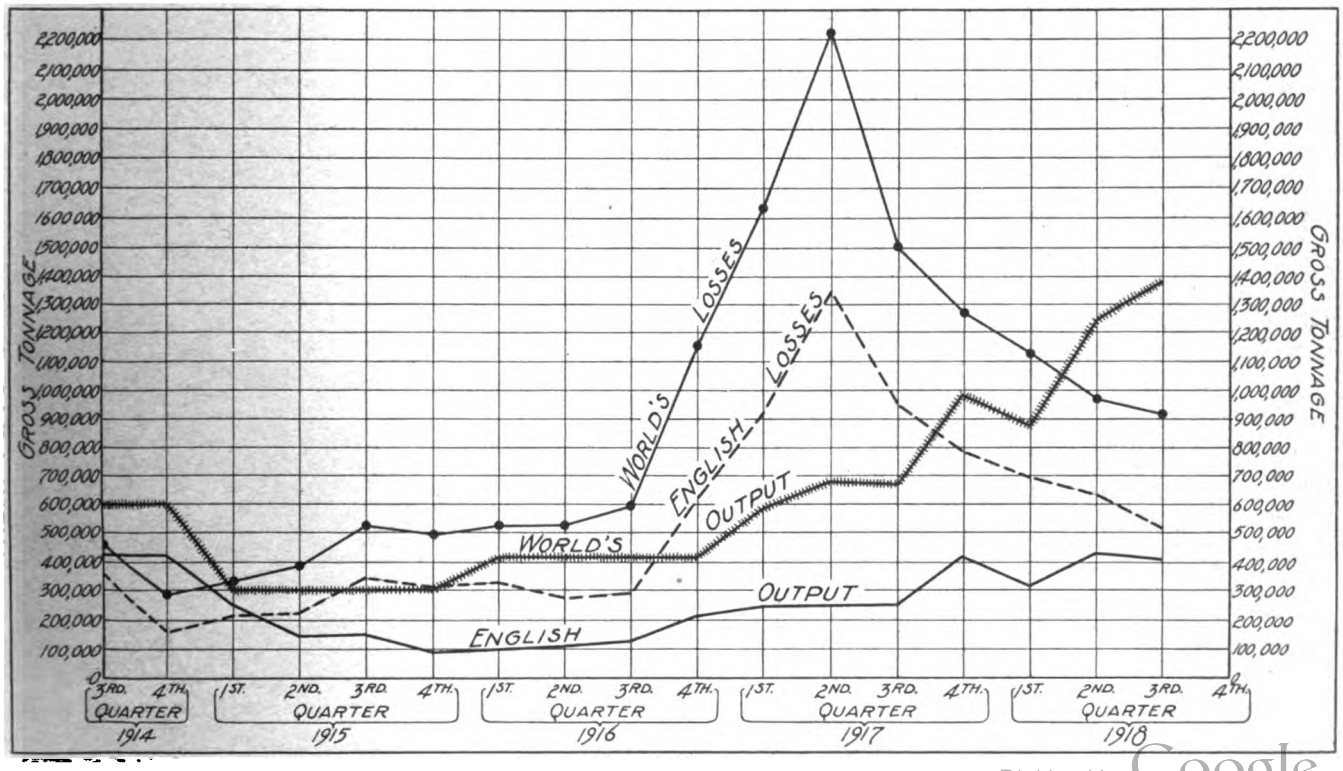
The United States shipping board has established a new sea service bureau as a central agency for the employment of crews for all merchant ships operated by the board. The service was inaugurated Jan. 1 and eventually will operate through offices in the principal American ports.

NOT only seamen but masters, mates, engineers, "all hands and the cook," will be signed on for duty. Vessels privately operated will be given the privilege of shipping crews through the bureau on the same footing as those operated by the shipping board. Capt. Irving L. Evans, Cleveland, a former shipmaster and an admiralty lawyer, was transferred from the board's recruiting service to head the new bureau, which was formed by combining an agency of the same name in the recruiting service with the existing shipping agencies of the board's division of operations, that hitherto has manned the ships operated by the board. In addition to placing experienced seafarers in employment, the new bureau will ship out for sea duty all the graduates of the shipping board's training system.

Three hundred applications a day from soldiers of the selective army wishing to enter the merchant marine on getting their discharge are being received by shipping board recruiting agents at army camps. The board has sent a representative of its recruiting service to each of 30 cantonments to present to the soldiers there awaiting release from military service facts about opportunities for a career in the merchant marine. Many of the responses are from men who followed the sea before being selected for military duty. A majority, however, are from youths who have never been to sea, but are drawn to a seafaring life by a spirit of adventure and a desire to embark on a career promising substantial rewards. Actual recruiting of these men is not done at the camps but each applicant for sea service signs a card, giving his qualifications.

English Output Steadily Below Losses

THE accompanying chart illustrates the world's output and loss of merchant tonnage and also that of England for each quarter from the opening of hostilities up to Sept. 30, 1918. Some of the major figures follow: The war cost the world 15,053,786 gross tons of vessels of which 9,031,828 gross tons were of ships flying the British flag, comprising nearly two-thirds of the total losses. New construction to the amount of 10,849,527 gross tons partially made good the enormous loss while enemy tonnage captured amounted to 2,392,675 gross tons more bringing the total tonnage available for offsetting the destruction up to 13,242,202. Thus the net loss is 1,811,584 gross tons. These are world figures. The direct British losses are more striking. To the British loss of 9,031,828 gross tons, English shipyards contributed in new construction 4,342,296 gross tons while 530,000 tons were purchased abroad and 716,520 gross tons were captured from the enemy. The total credit is thus 5,588,816 gross tons, leaving the net British loss 3,443,012 gross tons. These figures are brought up to Oct. 31, 1918. Between that time and the signing of the armistice only 14,075 gross tons of ships were lost through enemy action, including 11,916 gross tons of British ships and 2159 gross tons of vessels of other nations.



"Your fine organization capacity and high ability proved of tremendous influence in the success of our shipping efforts in the war."
—Hurley

Men Who Ruled World's Tonnage

FRANKLIN—GUTHRIE—RAYMOND

"Your work was done so quietly that I doubt whether you will ever receive the complete recognition it so justly deserves."
—Hurley

WITH the passing of the year 1918, the shipping control committee, created during the war emergency by the United States shipping board went out of existence. This was the first tangible demonstration of the beginning of the restoration of normal peace conditions; a step coincident with the gradual release of ships for commercial uses.

When sending in their resignations the members of the committee stated:

"In view of the very material reduction in the movement of military traffic to France, and the general easing down of that situation, and the fact that the altered conditions regarding shipping will probably free a good deal of tonnage for commercial trades, this committee feels that the time has come when it should be relieved of the duties delegated to it by the resolution of the United States shipping board dated Feb. 11, 1918." The shipping control committee allocated the vessels owned by and under the control of the shipping board to cargoes and trade routes so as to use the available tonnage to the maximum efficiency in the most essential trades. It also had entire charge of the operation of the fleet of cargo steamers engaged in transporting military material to the American army abroad. At one time 1356 vessels of 7,224,862 deadweight tons were under the jurisdiction of the committee. The work of the committee had been highly organized and such of its duties as remain after the first of the new year were divided among other executive divisions of the shipping board. The division of operations, for instance, will have general supervision of allocating tonnage to the private lines which are to use it.

The shipping committee was composed of P. A. S. Franklin, president of the International Mercantile Marine Co.; H. H. Raymond, president of the Clyde and Mallory lines, and Sir Connop Guthrie, the English representative in the United States of the British government's shipping interests. It was purely a war organization and originally intended to coordinate the shipping of the allied nations in order to put the full power of ocean service behind the war.

ACCEPTING the resignations, the shipping board paid tribute to the highly efficient and patriotic service of the committee "in its successful conduct and discharge of duties that have been most difficult and involved, and of the highest importance in the successful prosecution of the nation's military plans and operations." Especial regret was expressed over the resignation of Mr. Franklin who has been a close advisor of Chairman Hurley and officials of the shipping board upon the many and detailed problems of ship operation. Mr. Franklin had become to be looked upon by the shipping board as such an authority on ship operation as Charles M. Schwab was on shipbuilding and steelmaking. According to many reports the shipping board would have desired to retain the services of Mr. Franklin even though the work of his committee had been completed. The fact that Mr.

P. A. S. FRANKLIN

Franklin was not retained in any capacity whatever has been attributed to the desire on his part to be severed entirely from the affairs of the board. He owes a peculiar duty to the stockholders of the International Mercantile Marine Co. and at the last moment the shipping board had become interested in the affairs of that company. Although the interference was over the question of the sale of the British tonnage owned by the company, the incident placed Mr. Franklin in a rather embarrassing position. Undoubtedly he desired to sever his official connection rather than appear in the eye of the public as serving two masters. The method of handling this incident was indicative of the high-mindedness of the men involved. Chairman Hurley was in Europe when the resignations were handed in. He cabled immediately to Mr. Franklin as follows:

"Upon your resignation, which I hope you will postpone for the present, I want to say that your fine organization capacity and high ability proved of tremendous influence in the success of our shipping efforts in the war. An enormous burden was imposed upon the ship control committee and each member of your organization, but its work was done so fairly and impartially that the radical requisitions that were necessary were met by the shipowners without complaint or hesitation. Your work was done so quietly that I doubt whether you will ever receive the complete recognition it deserves. The maximum service was obtained from every ship under your expert and efficient direction and I am pleased at the opportunity to make this statement to you."

ABOVE—SIR CONNOP GUTHRIE
BELOW—H. H. RAYMOND

It was through the Franklin committee that tonnage was provided for taking care of such important requirements as nitrates, manganese ore, sugar, hemp, wool, hides and tanning extracts. The committee had no control over the place where new tonnage was tendered to it. Ships were delivered on the Pacific or the Atlantic and the employment of such ships, until they were in a position to take care of a useful trade movement was at times a rather serious problem. The committee also had charge of the coastwise movement of coal to New England; a trade requiring a vast amount of tonnage and most careful supervision. The committee allocated approximately 1,000,000 tons of ships for the transatlantic and the transpacific trades and also exercised jurisdiction over all tankers, an average monthly handling of 1,400,000 deadweight tons. The committee operated approximately 750,000 deadweight tons in trade with South America and the West Indies. Fixtures were made for the carriage of coal and coke, and some vessels were placed on berth for general cargo. The more important commodities moved were nitrates, canned meats, linseed, sugar, iron ore, manganese ore, sisal, fruit, cocoanuts, coffee, sulphur and phosphate rock. Incidentally the committee kept account of all sailing vessels.

Shipping Board Draws Up Operating

Operating Agreement

This agreement made this ..... day of ..... by and between the United States Shipping Board Emergency Fleet Corp., party of the first part, hereinafter called the corporation, and ..... of ....., party of the second part, hereinafter called the agent, witnesseth:

Whereas, the corporation is operating the vessel ..... and certain other vessels and desires to make a contract of agency with the agent for the conduct of the business of said vessel and such other vessels as it has assigned and may assign to the agent for such purpose;

Now, therefore, it is agreed as follows:

First. The corporation hereby appoints the agent as its agent for the operation of the vessel ..... and such other vessels as the corporation has assigned and may from time to time assign to the agent for such purpose.

Second. The corporation will provide and pay for all provisions, wages, and consular shipping and discharging fees of the master, officers, and crew; and for all the cabin, deck, engine room, and other necessary stores; and will maintain the vessel in a thoroughly efficient state in hull, machinery and equipment, for and during service.

Third, the agent—

(a) Shall act as such agent and operate the vessels in such trade or service as the corporation shall from time to time direct, the agent being at all times subject to the orders of the corporation as to voyages, cargoes, priorities of cargoes, charters, rates of freight and other charges, and as to any and all matters arising out of or connected with the use of the vessels.

(b) Shall, as agent for the corporation, provide and pay for all the fuel, fresh water, stevedoring, port charges, pilotages, agencies, commissions, consular charges, except those pertaining to the master, officers and crew, and all other expenses which are usually borne by a time charterer of a vessel.

(c) Shall exercise due diligence to see that all freight is prepaid, except when otherwise instructed by the corporation, or where the prevailing customs under the particular circumstances of the specific voyage and trade from a foreign or dependency port are to the contrary, in which case freight may be made payable at destination in accordance with the usual practice. All freight in cases where cargo is perishable or not worth the freight charges must be prepaid.

(d) Shall issue or cause to be issued to shippers, without prejudice to the terms of the charter party covering any vessel operated hereunder, customary freight contracts and bills of lading, and shall exercise due diligence to see that such documents contain all exemptions and stipulations usual to the particular trade or service in which the vessel may be engaged, and reserve to the corporation a lien upon all cargoes for the payment of freight, primage charges, dead freight, demurrage, forwarding charges, advance charges for carriage to port of shipment, for contributions in general average and special charges on cargo, and for all fines or damages which the vessel or cargoes may incur by reason of illegal, incorrect, or insufficient marking or addressing of packages, or description of their contents, and make the shipments subject to customary war clauses, to the act of congress of Feb. 13, 1893, known as the "Harter act," and to a provision that all general average shall be settled, unless otherwise directed by the corporation, at New York in accordance with York-Antwerp rules of 1890, and Antwerp rule of 1903, and where they are not sufficient, in accordance with the rules and customs in such matters at the port of New York, and also subject to the following clause:

"If the owner of the ship shall have exercised due diligence to make said ship in all respects seaworthy and properly manned, equipped and supplied, it is hereby agreed that in case of loss, damage, danger or disaster resulting from fault or negligence of the pilot, master or crew, in the navigation or management of the ship, or from latent or other defects or unseaworthiness of the ship whether existing at the time of shipment or at the beginning of the voyage, or on the voyage, but not discoverable by due diligence, the owner shall not be liable therefor, and the consignee or owners of the cargo shall not be exempt from liability for contribution in general average, or for any special charges incurred, but with the ship owner shall contribute in general average and shall pay such special charges as if such loss, damage, danger or disaster had not resulted from such fault, negligence, latent or other defect, or unseaworthiness."

(e) Shall collect all freights and other money due the corporation, advance all funds for all expenses properly to be paid by him as agent for the vessel other than requisition hire, and take proper general average security.

(f) Shall hold all money collected on behalf of the corporation, and shall deposit the same in national banks, or banks which are members of the United States Federal Reserve association, as a separate trust fund, to be designated "——— (name of agent) Shipping Board Fund," and shall not

PLANS of the government for handling its large fleet of merchant vessels are gradually being disclosed. The first step taken will be to turn "released" vessels over to private American lines to operate on a commission basis. An agency agreement was proposed by the shipping board last summer, but was revised after the signing of the armistice with Germany at the solicitation of the ship operators. Under the new plan of operation the government will bear the main expenses of operation whereas the ship operator will obtain a set fee for his administration of the boats.

The Emergency Fleet corporation will bear the expenses of "all the fuel, fresh water, stevedoring, port charges, pilotages, agencies, commissions, consular charges." The Emergency corporation also will pay for "all provisions, wages and consular shipping and discharging fees of the master, officers and crew; and for all the cabin, deck, engine room, and other necessary stores; and will maintain the vessel in a thoroughly efficient state in hull, machinery and equipment."

An agency fee will be allowed the operator in the following amounts:

A—On the outbound movement from United States ports:

(1) On general cargo:
2½ per cent on average freight rate of $5 or less per ton.
2¼ per cent on average freight

nd Managing Agreements for All Ships

Operating Agreement

mingle the same with other moneys owned or held by the agent, and shall make from such funds all disbursements hereinafter authorized to be paid by the agent for account of the corporation to others than the agent.

(g) Shall keep separate accounts in such manner and form as may be prescribed by the corporation of all moneys collected and disbursed, and accord to accountants and other representatives of the corporation access to all books and papers, and render such assistance in the examination thereof as the corporation may require.

(h) Shall promptly after the dispatch of each vessel, or at such other time or times as may be directed, account to the corporation for all moneys collected on its behalf, and, with supporting vouchers, account for all disbursements reasonably and properly made on behalf of the corporation as in this agreement authorized. No items unsupported by vouchers will be allowed which in the aggregate exceed $10.

(i) Shall, in order to prevent speculation in freight or passenger space, exercise due diligence to see that all freight contracts show the name of actual shipper, commodities, quantities, and freight rates, except that in coastwise trade of the United States and in the West Indies trade the freight rate need not be shown on permits, but must be shown on the bills of lading and must be the rate in current tariffs; and no space allotted to the original shipper may be sublet on any terms or conditions whatsoever without the consent of the corporation. If the agent shall knowingly carry any cargo without the consent of the corporation, the space for which has been sublet by the original shipper upon any terms or conditions whatsoever, the agent shall receive no commission, fee or other compensation for any services rendered as the operator of the vessel during the voyage.

(j) Shall exercise due diligence to see that all bills of lading when issued agree with the freight contracts, that all wharf receipts for freight are non-negotiable, and that a freight contract or permit is issued for each shipment.

(k) Shall exercise due diligence to perform or cause to be performed all of the customary agency duties concerned with loading and discharging cargoes at all ports included in the vessel's itinerary, and do, or cause to be done, all things necessary for the protection and safeguarding of the interests of the corporation.

Fourth. The corporation, in consideration of the services or things agreed to be performed hereunder by or through the agent, shall pay the agent compensation and allow payment of compensation to others in accordance with the schedules which shall from time to time be established by the United States shipping board. Until further notice compensation shall be allowed and paid as hereinbelow provided.

A.—Commissions and fees payable to the agent.

I. On all vessels except tankers:

(a) From United States ports:

As soon as possible after dispatching any vessel from any United States port, the agent shall forward to the corporation a freight list showing the number of revenue tons of cargo carried and the total amount of freight money, and a commission to the agent based on the average rate of freight will be allowed on the total freight list as follows:

(1) On general cargo:

Two and one-half per cent on average freight rate of $5 or less per ton.
Two and one-fourth per cent on average freight rate of $5.01 to $10 per ton.
Two per cent on average freight rate of $10.01 to $20 per ton.
One and three-fourths per cent on average freight rate of $20.01 to $40 per ton.
One and one-half per cent on average freight rate of $40.01 to $60 per ton.
One and one-fourth per cent on average freight rate of $60.01 to $80 per ton.
1 per cent on average freight rate of $80.01 to $100 per ton.
One-half per cent on average freight rate of $100.01 or over per ton.

(2) On bulk cargo the rate of commission shall be one-half of the above rates.

The term "bulk cargo" as used in this agreement shall include a cargo, a substantial part (amounting to 50 per cent or more) of which is loaded at one port and discharged at one port, when covered by one bill of lading, and delivery is made without regard to marks or numbers. Whenever the excess over such substantial part is general cargo the commission payable on general cargo as above shall be paid on the freight earnings on such excess.

The term "bulk cargo" as used in this agreement shall include all United States government cargoes, when vessel is exclusively laden therewith. Where government cargoes are carried and no charge or a nominal charge is made therefor,

rate of $5.01 to $10 per ton.
2 per cent on average freight rate of $10.01 to $20 per ton.
1¾ per cent on average freight rate of $20.01 to $40 per ton.
1½ per cent on average freight rate of $40.01 to $60 per ton.
1¼ per cent on average freight rate of $60.01 to $80 per ton.
1 per cent on average freight rate of $80.01 to $100 per ton.
½ per cent on average freight rate of $100.01 or over per ton.

(2) On bulk cargo the rate of commission will be one-half the rates for general cargo.

B—On the inbound movement to United States ports:

A fee of $250 for each vessel, on general and bulk cargo.

C—From or into United States ports, one commission of 5 per cent will be allowed on all mails, express, and commercial passenger revenue.

The agreement, as shown in full in the accompanying box, covers the many details of management which are likely to arise, and while ship operators are not entirely satisfied with its terms it is a far more acceptable document than the original proposed last summer.

The new managing agreement provides compensation for each vessel up to and including the fifth at the rate of $500 a month. For each vessel in excess of five, a rate of $350 a month is provided. The rate is also proportioned for fractions of a month. The government agrees to pay for fuel, fresh water, port charges, pilotages, agencies' commissions and consular charges.

Operating Agreement

the commissions and fees shall be based upon a freight schedule established in each case by the United States shipping board for such purpose.

(b) Into United States ports from foreign and dependency ports, a fee of $250 for each vessel, on general and bulk cargo, will be allowed.

The term "dependency ports" as used in this agreement shall include ports in the Hawaiian islands, Porto Rico, the Virgin islands, Guam, the Canal Zone, the Philippine islands, and Alaska.

(c) From or into United States ports, one commission of 5 per cent on all mails, express, and commercial passenger revenue will be allowed. This commission is also to cover all agency commissions and fees paid in foreign or dependency ports, except the brokerages authorized to be paid under C-II below.

II. On tankers.

Between United States ports and foreign and dependency ports, a fee of $100 for each vessel will be allowed.

B. Payments by the agent for unloading, loading, and attendance commissions and fees paid to others than the agent at foreign and dependency ports.

I. On all vessels including tankers:

(a) A commission or fee not exceeding the lowest customary commission or fee prevailing under the particular circumstances of the specific voyage and trade; provided that any commission or fee paid for attending to any mail, express, or commercial passenger revenues shall be borne by the agent out of the commission allowed him under A-I (c), supra, except the brokerages authorized to be paid under C-II below.

In Mediterranean ports a combined agency and unloading fee not exceeding $500 on general cargo or $250 on bulk cargo, if one port of discharge is used, and $125 for each additional port of discharge, the fee to include the clearing of the vessel outward if she sails in ballast or light, will be allowed:

The same customary commission and fees of the port will be allowed the branch house of the agent as would be allowed to others than such branch house.

C. Payments not otherwise authorized.

I. In cases where it is necessary for the agent to employ a broker in United States ports for booking portions of cargoes or for negotiating charters, a brokerage commission of not exceeding 1 per cent may be paid. In such cases in foreign or dependency ports the lowest customary commission or fee prevailing under the particular circumstances of the specific voyage and trade may be paid. Wherever customary and proper freight brokerages in United States ports have been paid by the agent prior to the signing of this agreement, such brokerages may be included as a proper disbursement charge against the vessel.

II. In cases where it is necessary for passenger tickets to be sold through a broker in foreign or dependency ports, the lowest customary brokerage prevailing under the particular circumstances of the specific voyage and trade may be paid. Wherever customary and proper, passenger brokerages in United States ports have been paid by the agent prior to the signing of this agreement, such brokerages may be included as a proper disbursement charge against the vessel.

III. In a foreign or dependency port for proper disbursements of the vessel, the lowest customary commission prevailing under the particular circumstances of the specific voyage and trade may be paid, or if the agent, being without funds of the corporation at such ports, makes such advances, the proper cost of securing such funds will be allowed.

IV. For entering and clearing vessels light or in ballast into and from United States ports from and into foreign or dependency ports, respectively, or into and from United States Atlantic ports from and into United States Pacific ports, respectively, and vice versa, a fee commensurate with the service, but not exceeding $50, will be allowed. No fee will be allowed for entering or clearing vessels light or in ballast into and from United States ports, and vice versa, other than those above mentioned.

Fifth. Whenever the corporation may legally have the advantage of existing or future contracts of the agent for the purchase of material, fuel, supplies, or equipment, it shall have the benefit thereof; provided that such contract may be made available to the corporation without unreasonably interfering with the requirements of other vessels owned or operated by the agent.

Sixth. The corporation shall reimburse the agent for all disbursements reasonably and properly incurred on its behalf in the conduct of the business of the vessels as in this agreement authorized.

Seventh. All salvages shall be for the benefit of the corporation. This provision, however, shall not be construed to deprive the agent of any right to salvage reserved to the agent as vessel owner under any charter.

Eighth. The corporation shall have the right at any time to terminate this agreement as to any or all vessels assigned to the agent and to assume forthwith possession of any or all of the vessels and to collect directly all freight, moneys, or other charges remaining unpaid. The agent, however, in such cases shall adjust, settle, and liquidate the current business of the vessels if so required by the corporation.

Ninth. Upon giving the corporation 30 days' written notice, the agent shall have the right to terminate this agreement, said termination not to become effective as to any vessel until its arrival and discharge at a United States port. The agent shall, however, if required by the corporation, adjust, settle and liquidate the current business of the vessels for account of the corporation.

Tenth. The agent shall, at the time of execution and delivery of this contract, or at any other time, if so required by the corporation, furnish a satisfactory bond in such amount as the corporation may order for the faithful and proper discharge of the obligations and duties hereunder assumed.

Eleventh. This agreement shall be retroactive in its application to all vessels heretofore assigned to the agent for the conduct of the business.

UNITED STATES SHIPPING BOARD
EMERGENCY FLEET CORPORATION,

Witness as to signature:

.....

Witness as to signature:

.....

By . .....
Director of Operations.

By . .....
The Agent.

Managing Agreement

This agreement made this ..... day of ..... by and between the United States Shipping Board Emergency Fleet Corporation, party of the first part, hereinafter called The Corporation, and .....of .....party of the second part, hereinafter called The Manager, Witnesseth:

Whereas The Corporation is operating the vessel ..... and certain other vessels and desires to make a contract with The Manager for the husbanding and managing of said vessel and such other vessels as it has assigned and may assign to The Manager for such purpose;

Now, Therefore, it is agreed as follows:

First. The Corporation hereby appoints The Manager as its agent for the husbanding and managing of the vessel ..... and such other vessels as The Corporation has assigned and may from time to time assign to The Manager for such purpose.

Second. The Corporation will provide and pay for all fuel, fresh water, stevedoring, port charges, pilotages, agencies, commissions, and consular charges, except those pertaining to the master, officers, and crew, and all other expenses which are usually borne by a time charterer of a vessel.

Third. The Manager—

(a) Shall act as The Manager and manage the vessel in such trade or service as The Corporation shall from time to time direct, being at all times subject to the orders of The Corporation or its agents as to voyages, cargoes, priorities of cargoes, charters, rates of freight, and other charges, and as to any and all matters arising out of or connected with the use of the vessels.

(b) Shall, as manager for The Corporation, take proper delivery of the vessel from the Operation or Construction Division of The Corporation, or from the owner, builder, or anyone else having possession, as The Corporation may direct.

(c) Shall exercise due diligence to man, equip, victual, and supply the vessel, providing and paying for all provisions, wages, bonuses, consular shipping and discharging fees of the master, officers and crew; all cabin, deck, engine room, and other necessary stores; and all other costs and expenses (except those expenses to be paid by The Manager out of his own funds covered by the compensation and fees hereafter provided for) properly incident to the management of the vessel, including the war risk insurance, if any, required by law on the master, officers and crew.

(d) Shall exercise due diligence to maintain the vessel in a thoroughly efficient state in hull and machinery, in tackle, apparel, furniture, and equipment, procuring for and on behalf of The Corporation the necessary labor and material to effect ordinary running repairs and replacements. No extraordinary repairs or expenses shall be made or incurred and no alteration in hull, machinery or gear shall be made by The Manager, except in serious emergency, without first securing in writing the authorization of The Corporation or of an agency charged by The Corporation with the giving of such authorization.

(e) Shall exercise due diligence to see that no harm or damage of any kind comes to the vessel through loading of improper cargo, through improper stowage or through berthing of the vessel; that the work of The Manager is done in such a way and at such times as not to impede or retard, or to be impeded or retarded by, the work of The Corporation, the Operating Agent appointed by it, or the charterer from it; and in general to work in closest harmony with The Corporation, the Operating Agent, or charterer to the end that the utmost efficiency, dispatch and economy may be secured in the management and operation of the vessel.

(f) Shall, whenever no separate Operating Agent is acting, do the things such Operating Agent would do under the regular form of Operating Agreement of The Corporation then in use, and shall be bound by the terms and conditions of such Operating Agreement.

(g) Shall hold all moneys collected on behalf of The Corporation, and shall deposit the same in national banks, or banks which are members of the United States Federal Reserve Association, as a separate trust fund, to be designated ".....
(Name of Manager).
Shipping Board Fund," and shall not mingle the same with other moneys owned or held by The Manager; and shall make from such funds all disbursements hereinafter authorized to be paid by The Manager for account of The Corporation to others than The Manager.

(h) Shall keep separate accounts in such manner and form as may be prescribed by The Corporation of all moneys collected and disbursed, and accord to accountants and other representatives of The Corporation access to all books and papers, and render such assistance in the examination thereof as The Corporation may require.

(i) Shall promptly after the dispatch of each vessel, or at such other time or times as may be directed, account to The Corporation for all moneys collected on its behalf, and, with supporting vouchers, account for all disbursements reasonably and properly made on behalf of The Corporation, as in this agreement authorized. No items unsupported by vouchers will be allowed which in the aggregate exceed $10.

(j) Shall generally exercise due diligence to do or cause to be done all things which would be done by the owner or the owner's agent under the usual government form time charter, attending to all matters arising out of or in connection with the management of the vessels, necessarily incident to the proper care and prompt shipment and delivery of the cargoes, and to the protection and safeguarding of the interest of The Corporation.

Fourth. The Corporation in consideration of the services or things agreed to be performed hereunder by or through The Manager, shall pay The Manager compensation and allow compensation to others in accordance with the schedule which shall from time to time be established by the United States Shipping Board. Until further notice, compensation shall be allowed and paid as follows:

A.—Managing Compensation.

For managing the vessels covered by this agreement, for rendering the customary services of a ship's husband, and for performing all of the duties of The Manager prescribed by this agreement:

I. For each vessel up to and including the fifth at the rate of $500 per month and proportionately for each part of a month;

II. For each vessel in excess of five at the rate of $350 per month and proportionately for each part of a month.

The managing compensation shall be payable as to each vessel from the time of delivery to The Manager until the time of redelivery or loss.

B.—Compensation Payable to Others than The Manager.

I. In cases where it is necessary for The Manager to pay a commission to secure advances in a foreign or dependency port for proper disbursement of the vessel, the lowest customary commission prevailing under the particular circumstances of the specific voyage and trade, may be paid, or, if The Manager, being without funds of

Managing Agreement

The Corporation at such ports, make such advances the proper cost of securing such funds will be allowed.

Fifth. Unless The Corporation otherwise directs, matters connected with the husbanding and managing of the vessel in any port in which the Manager has no agent should be attended to by the master who should be empowered to draw funds for ordinary disbursements for crew's wages, provisions, stores, and necessary repairs, as authorized in clause "Third (d)" of this agreement, provided that if it is within the master's power he shall consult The Manager or The Corporation by cable or otherwise before making extensive repairs or replacements. If The Manager shall have used due diligence in the selection, instruction, and control of the master, The Manager shall not be responsible for the master's manner of dealing with the funds so drawn. The master shall, whenever necessary, procure funds from the Operating Agent, or his representatives, to avoid cost of commission or exchange whenever the Operating Agent or his representatives has funds of The Corporation in hand.

Sixth. If The Manager shall knowingly carry any cargo without the consent of The Corporation, or its representatives, The Manager shall receive no commission, fee, or other compensation for any services rendered as The Manager of the vessel during the voyage.

Seventh. Whenever The Corporation may legally have the advantage of any existing or future contract of The Manager for the purchase of material, fuel, supplies, or equipment, it shall have the benefit thereof; provided that such contract may be made available to The Corporation without unreasonably interfering with the requirements of other vessels owned or operated by The Manager.

Eighth. The Corporation shall reimburse The Manager for all disbursements reasonably and properly incurred on its behalf in the husbanding and managing of the vessels as in this agreement authorized.

Ninth. All salvages shall be for the benefit of The Corporation. This provision, however, shall not be construed to deprive The Manager of any right to salvage reserved to The Manager as vessel owner under any charter.

Tenth. The Corporation shall have the right, at any time, to terminate this agreement as to any or all vessels assigned to The Manager, and to assume forthwith possession of any or all of the vessels, and to collect directly all freights, moneys, or other charges remaining unpaid. The Manager, however, in such case shall adjust, settle, and liquidate the current business of the vessels if so required by The Corporation.

Eleventh. Upon giving The Corporation thirty days' written notice, The Manager shall have the right to terminate this Agreement, said termination not to become effective as to any vessel until its arrival and discharge at a United States port. The Manager shall, however, if required by The Corporation, adjust, settle, and liquidate the current business of the vessels.

Twelfth. The Manager shall, at the time of execution and delivery of this contract, or at any other time, if so required by The Corporation, furnish a satisfactory bond in such amount as The Corporation may order, for the faithful and proper discharge of the obligations and duties hereunder assumed.

Thirteenth. This agreement is made with the distinct understanding that The Manager has in his service a competent shore force consisting of at least one port captain and one port engineer, and, in the event that six or more vessels are assigned to The Manager, one port steward, each of whom has had actual sea experience in his respective capacity, and each of whom is exclusively in the service of The Manager.

Fourteenth. This agreement shall be retroactive in its application to all vessels heretofore assigned to The Manager for the husbanding of the business.

UNITED STATES SHIPPING BOARD
EMERGENCY FLEET CORPORATION.

Witness as to signature: .....

Witness as to signature: .....

By ..... Director of Operations.

By ..... The Manager.

Book Reviews

Uttmark's Guide for Masters and Mates, by Capt. Fritz E. Uttmark; cloth; 120 pages, 5¼ x 7¾ inches; published by the author and furnished by THE MARINE REVIEW for $2.

This is the third edition of Captain Uttmark's book which aims to afford the prospective candidate for license as master or mate some idea of the examination questions that will be asked him. It is arranged practically throughout in the form of questions and answers such as would be disclosed by an examination before the United States local inspectors of steam-vessels. The answers provided by Captain Uttmark are clear and as short as possible for a comprehensive explanation.

The first part of the book deals with definitions chiefly, such as relate to navigation and nautical astronomy, descriptions of the compass and similar necessary fundamentals. Under the head of seamanship are answered questions on engine room bell and telegraph, lead and leadline, managing a vessel in heavy sea and the like. Descriptions of lights, fog signals, whistles, international code flags, gun and rocket apparatus are given along with the explanation of other rules of the road. The fifth section of the book relates to ship's business, detailing the duties of masters and mates, rules for lifeboats, liferafts, and rules for stowage of various cargoes.

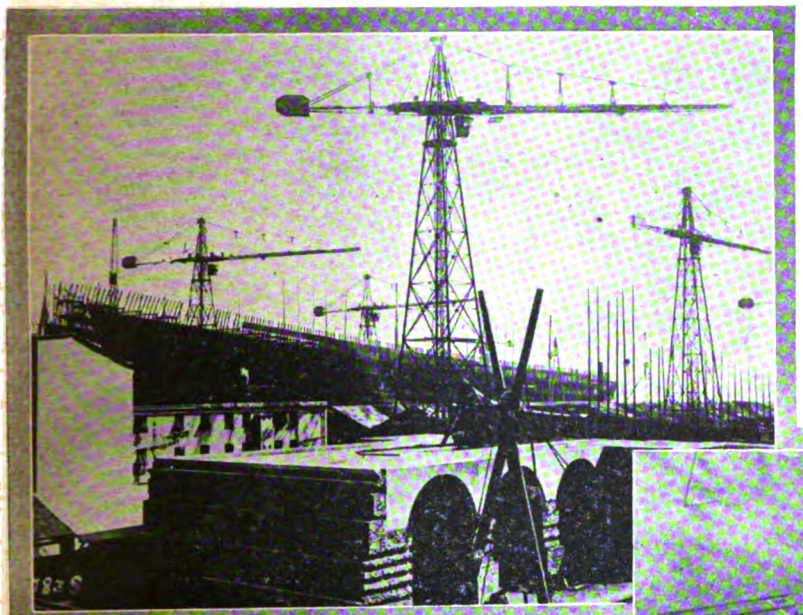
The concluding pages of the book are devoted to the rules and regulations of the department of commerce governing examinations for masters and mates. The book is evidently intended for practical study and review.

Steel Shipbuilders Handbook, by C. W. Cook; cloth; 123 pages, 4 x 7 inches; published by Longmans Green & Co. and furnished by THE MARINE REVIEW for $1.50.

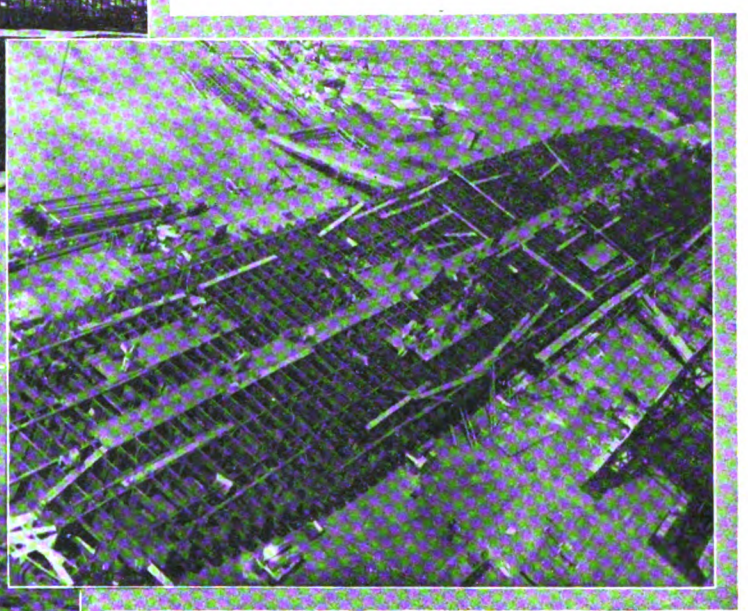
Every trade has its peculiar expressions and names for different things which are gradually acquired by the apprentice while serving his time. This rule, of course, applies to shipbuilding as well as any other trade and, in the shipbuilder's art, the trade expressions and names are exceedingly confusing to one who is attempting to acquire reliable knowledge in a short space of time. It is for this class of men that the present book is published.

The book is in reality a condensed encyclopedia of the terms and expressions used in steel shipyards; alphabetically arranged for ready reference. More than 1600 definitions are given. There are also included four plates which are reproductions of mechanical drawings. These illustrate a longitudinal section and upper deck plan; midship section; stern frame, propeller and rudder; and a bulkhead. All the illustrations refer to a typical steel cargo vessel and the various parts, of which 300 are shown, are named for easy reference. The book will prove of value to those seeking to learn the shipbuilding art.

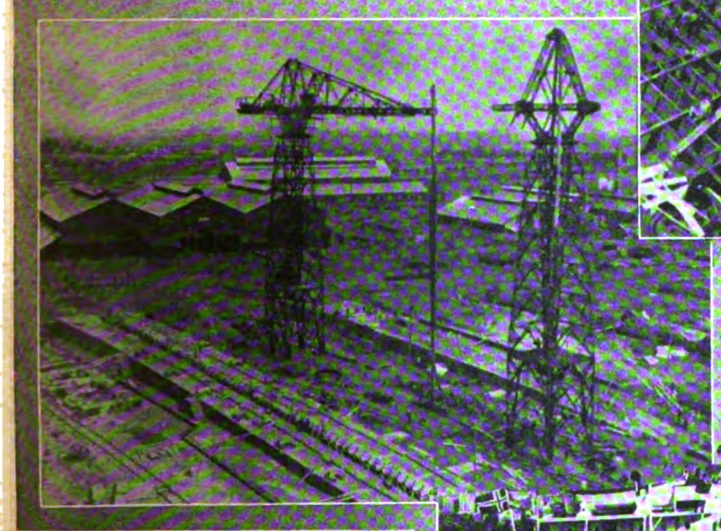
An Echo of War Still Ringing—More Ships!

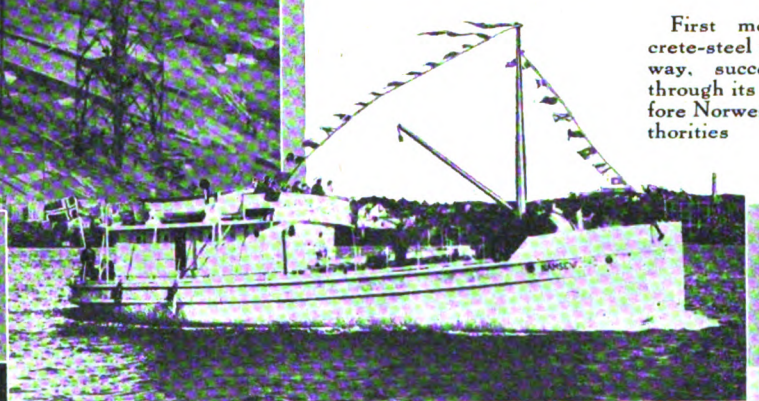


One of the most enduring effects of the war is the stimulus to shipbuilding, all nations now being fully appreciative of its importance. While the belligerents may have relaxed from supreme efforts, look where one may there is no doubting the fact that there is a world boom in shipbuilding, Japan especially has been alert, as these airplane views of her yards at Yokohama show



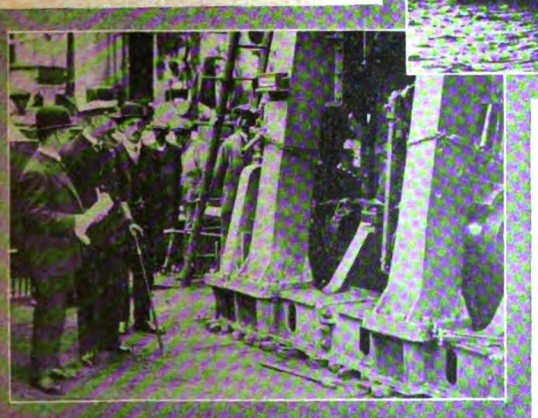
Italy, so dependent on others for her supplies, is falling into line as a shipbuilding nation. Above is a glimpse at one of her modern yards



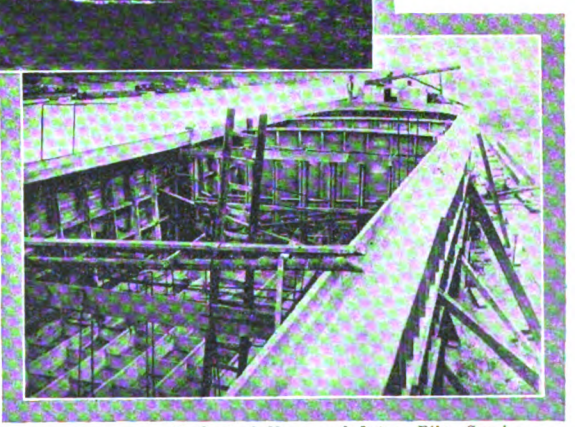


First motor-driven, concrete-steel ship built in Norway, successfully passing through its recent trials before Norwegian shipping authorities

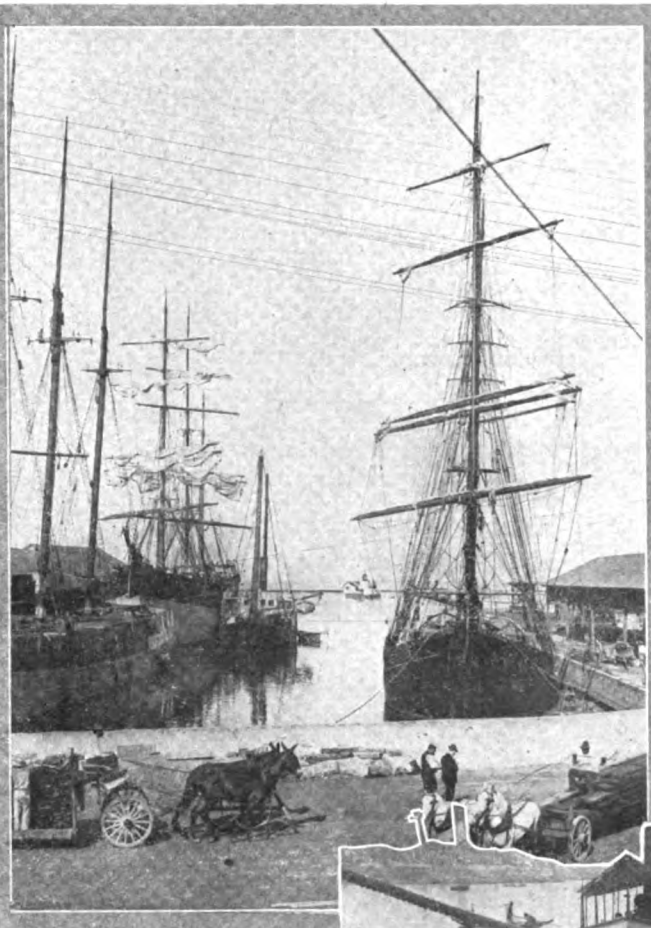
King George inspecting marine engines at Clyde yards



Shorn of wood and steel, France is devoting considerable attention to building concrete ships. Here is one of her river barges, a type of which she now has a number in use

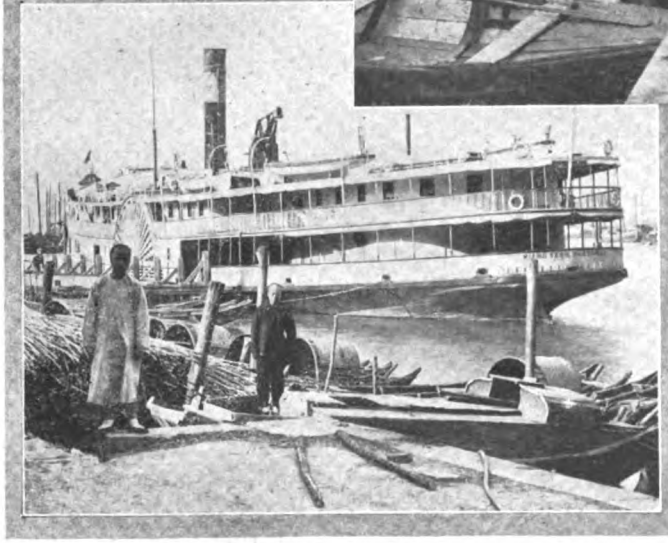


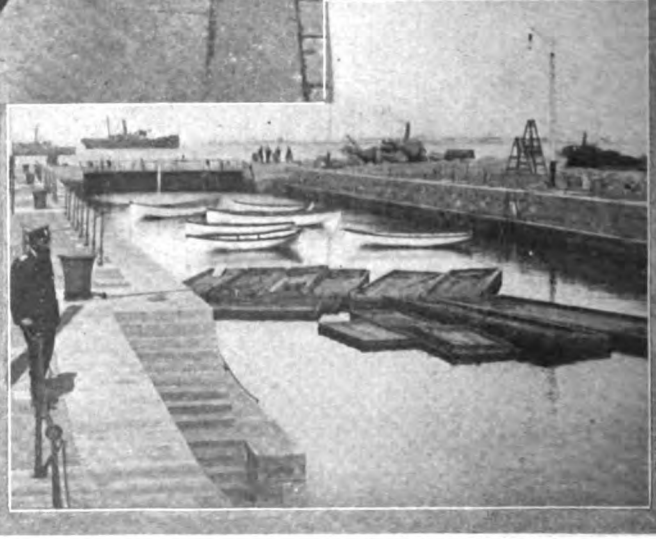
Ports That Beckon to American Trade



These Pacific ports are particularly promising to our western industries. Hawaii imports practically all its lumber and coal through Honolulu, the lumber docks of which are shown above. Below is a harbor scene at Shanghai, China, modern steamboats replacing junks on the Huang-pu

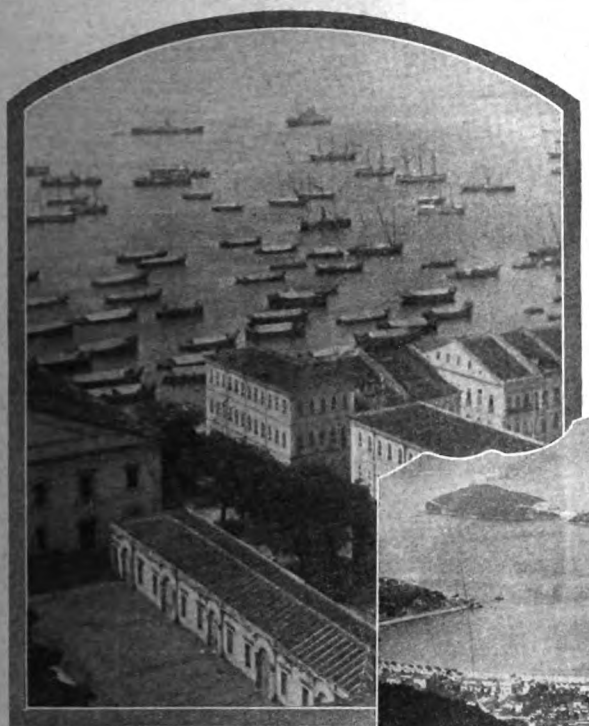
Modern carriers, seen in the offing, visit Singapore, the busy Straits Settlement port. Batavia, Java, the great coffee and spice island, has fine concrete piers for handling general merchandise, as shown at the left. Dalny, Manchuria (below) has a promising future as a great Pacific port



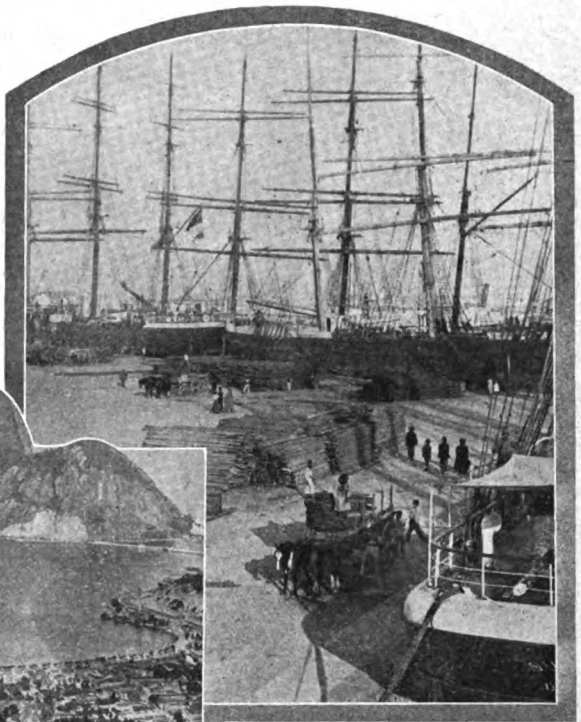


Here Rich Markets Await Our Ships

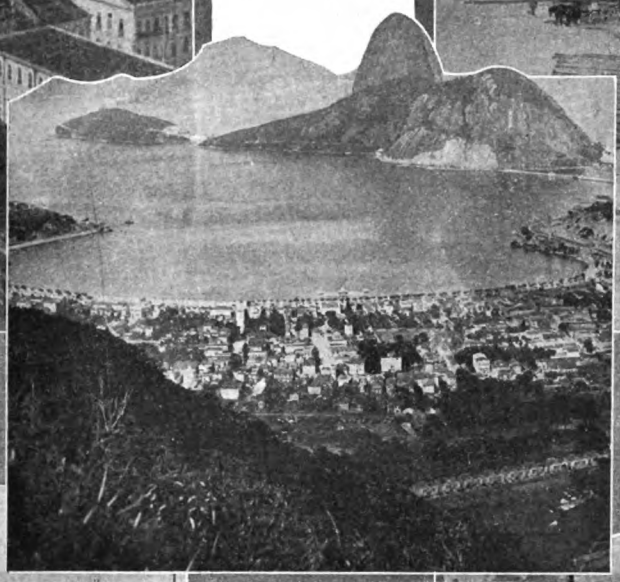
Leading ports of South American countries now appealing for our products. These ports are to see a great many more ships from the United States than they did in the past



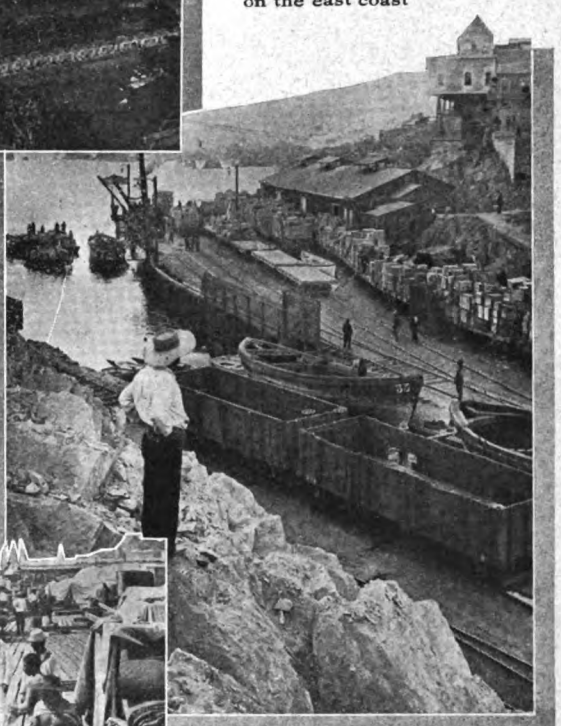
Ships in the fine harbor at Bahia, Brazil

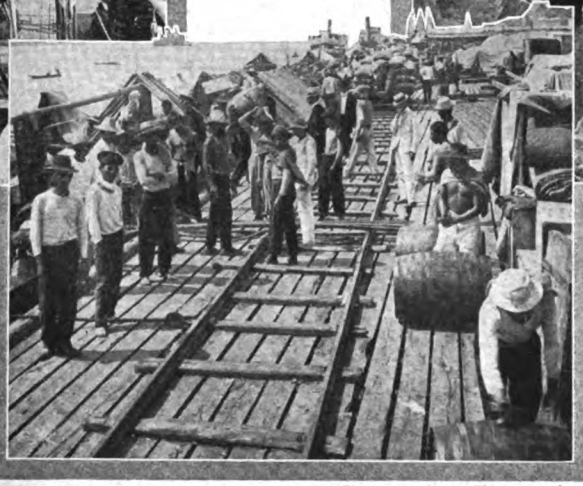


Harbor at Montevideo, Uruguay, an important port on the east coast



Rio de Janeiro, Brazil, has a beautiful harbor. Ships dock in the neck of the bay, just back of the city



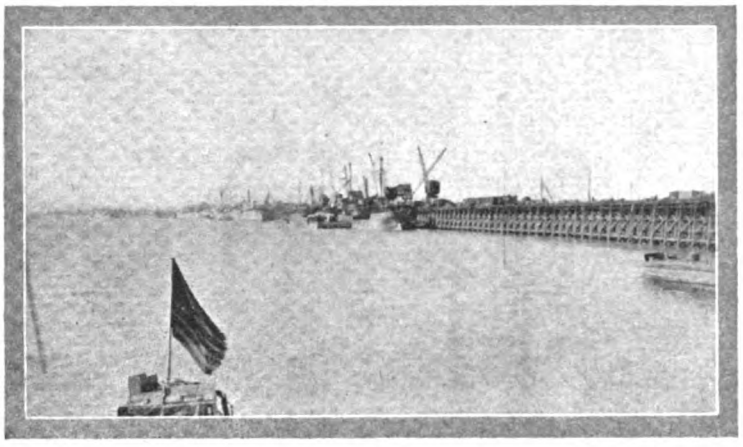


Crowded part of harbor at Buenos Aires, Argentina, largest port in South America, and (at the right) one of the big piers at Guayaquil, Ecuador, on northwest coast, reached by Atlantic vessels via Panama canal

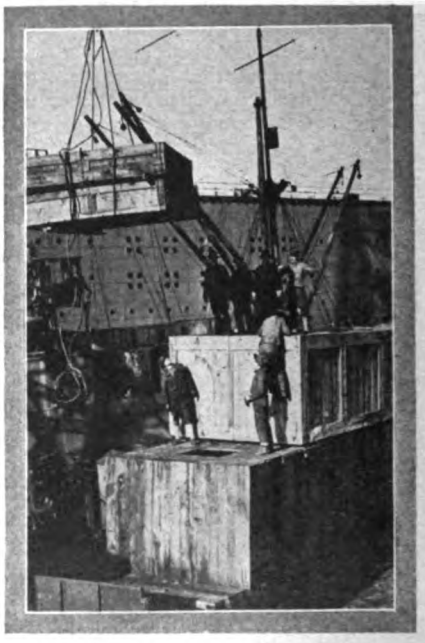
American goods being taken from lighters at Mollendo harbor, Peru. Ships anchor out some distance in the bay and are loaded and unloaded by lighters. Exporters are seeking to build up a big trade at these ports

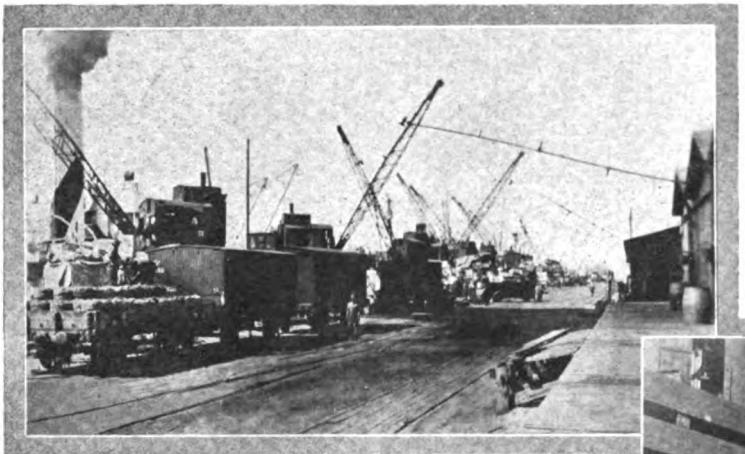
France's Ports Modernized Through War

French ports are now equipped with the best loading and unloading devices. American efficiency methods were an important influence, an evidence of which is shown below, cases of locomotive parts being unloaded from ships to cars in one operation.

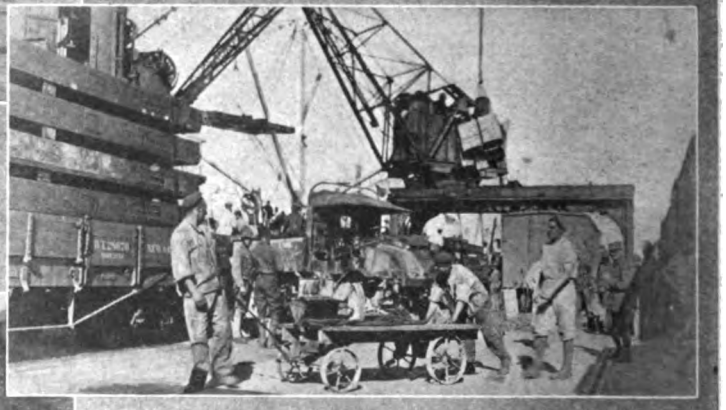


New docks and piers have been constructed, an advantage to American ships which will come laden with material for reconstruction

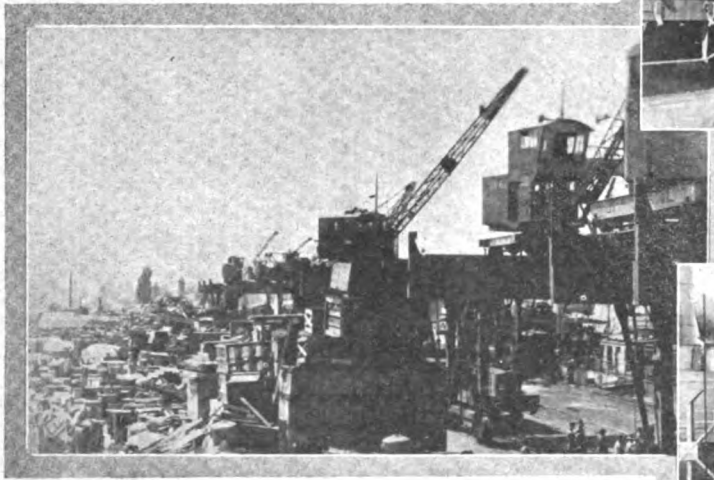




Nine cranes can work on one ship at the same time in unloading transports at this busy port



Large numbers of auto trucks are used to facilitate operations



Triple speed cranes were especially installed to handle the flood of material flowing in from the United States.

Traffic on Great Lakes in 1918

Freight Movement on the Inland Seas Met All Demands—Operators Adopt Mobilization Plan to Secure Maximum Efficiency

IN the season of 1918 an immense amount of bulk freight was moved on the Great Lakes, in all, 105,063,301 gross tons. This figure includes 6,667,658 gross tons of limestone, the movement of which has been growing rapidly in importance. Subtracting the stone tonnage carried, the movement of bulk freight totals 98,395,643 gross tons. This is a substantial increase over the amount moved in 1917 which was 96,700,000 gross tons. The total falls short, however, of the record tonnage moved in 1916 when lake ships transported 99,600,000 gross tons of bulk freight. Aside from maintaining an uninterrupted movement of ore, coal and grain, so essential in carrying on the war to a successful issue, the lake fleet conclusively demonstrated its ability, under private ownership and operation to meet the abnormal shipping conditions imposed by the war. This fact is of interest since nearly all other important shipping facilities of the country were under governmental control.

Lake vessel operators early recognized the importance of the unusual conditions which made a record freight movement both difficult and essential. Before the navigation season opened, it was recognized that the demands on lake tonnage coupled with disturbed conditions of railroad transportation, presented a serious problem. The operators decided to mobilize the lake vessels. A voluntary committee was formed of vessel owners whose duty it was to act as an operating head in directing the movements of cargoes. Shippers of coal, grain and ore were mobilized and these three distinctive shippers' organizations arranged to meet daily to discuss shipping questions in conjunction with representatives of the railroads. The plan was a complete success as the year's freight movement, shown in the various tables that accompany this article, reveals. The special insert presented with this issue shows graphically how the lake fleet moved the 98,395,643 gross tons of bulk freight in 1918. Compared with 96,700,000 moved in 1917, a net increase of 1,695,643 gross tons is shown. Compared with the record figures for 1916,

Great Lakes Traffic Statistics

COMMERCE THROUGH SOO CANAL

Items	Total traffic for Season 1917	Season 1918	Increase or decrease Amount	Per cent Inc.	Per cent Dec.
Vessels:					
Steamers, number	19,569	17,067	2,502	..	13
Sailings, number	1,943	1,634	309	..	16
Unregistered, number	1,373	1,909	536	39	..
Total, number	22,885	20,610	2,275	..	10
Lockages, number	14,611	14,903	292	2	..
Tonnage:					
Registered, net	65,307,233	61,100,244	4,206,989	..	6
Freight, short tons	89,813,898	85,680,327	4,133,571	..	5
Passengers, number	38,339	34,990	3,349	..	9
Lumber, M. ft. B. M.	350,609	296,919	53,690	..	15
Flour, barrels	8,450,039	8,228,844	221,195	..	3
Wheat, bushels	185,899,449	122,718,146	63,181,303	..	34
Grain, bushels	67,423,980	30,800,621	36,623,359	..	54
Copper, short tons	118,812	86,078	32,734	..	28
Iron ore, short tons	61,374,090	60,551,296	822,794	..	1
Manufactured and pig iron, short tons	102,082	38,767	63,315	..	62
Coal, soft, short tons	15,736,654	15,770,560	33,906	..	..
Coal, hard, short tons	2,562,199	2,211,050	351,149	..	14
Salt, short tons	84,656	81,007	3,649	..	4
Oil, short tons	262,489	334,134	71,645	27	..
Stone, short tons	571,001	402,009	168,992	..	30
General merchandise, short tons	658,365	494,137	163,928	..	25

The United States canal was opened April 20, and closed Dec. 14, 1918; season, 239 days.
The Canadian canal was opened April 23, and closed Dec. 17, 1918; season, 239 days.

COAL MOVEMENT ON LAKES, NET TONS

Year	Soft coal: Pittsburgh	Ohio	Virginia	Total*	Hard coal	Total coal movement
1918	7,611,005	10,031,577	9,217,790	29,388,422	3,948,705	33,337,127
1917	7,581,465	8,327,460	10,451,667	28,470,279	4,689,983	33,160,262
1916	8,674,000	5,163,000	9,491,000	24,369,000	4,423,800	28,792,800
1915	10,100,000	2,620,000	8,750,000	22,420,000	3,800,000	26,220,000
1914	11,195,000	1,363,000	9,106,000	22,995,000	4,285,228	27,280,228
1913	13,415,473	6,176,624	8,736,586	28,328,683	5,033,696	33,362,379
1912	11,300,000	4,676,000	7,360,000	23,335,000	4,204,741	27,539,741
1911	10,611,941	4,019,544	7,151,200	21,782,685	3,917,419	25,700,104
1910	11,911,900	4,297,300	6,629,500	22,838,700	3,639,368	26,478,068
1909	8,687,395	3,002,815	3,874,570	15,564,690	3,052,706	18,617,396
1908	8,700,000	3,600,000	3,450,000	15,750,000	3,538,098	19,288,098
1907	10,549,995	4,074,296	3,420,941	18,037,232	3,449,695	21,486,927
1906	9,237,272	2,560,906	2,743,732	14,591,910	2,681,808	17,273,718
1905	7,443,883	2,062,692	2,109,262	11,615,837	2,785,362	14,401,199

*Includes fuel coal and also shipments from the Kentucky district and Pennsylvania districts other than Pittsburgh.

GRAIN TRADE OF THE GREAT LAKES

(Shipments of flour not included)

	1918	1917	1916	1915	1914
Lake Superior	154,830,332	253,315,244	319,252,876	320,236,805	218,622,167
Chicago	68,842,269	5,947,955	25,058,000	44,438,000	87,791,000
Milwaukee	17,431,766	1,924,385	3,188,280	4,324,428	10,857,683
Other ports	4,188,587	1,668,317	16,500,000	17,020,142	18,430,099
Totals, bushels	245,292,954	262,855,601	363,999,156	386,019,375	337,718,949
Totals in net tons.	6,548,680	7,161,716	10,555,975	11,194,562	9,793,850

CONTRACT FREIGHT RATES ON IRON ORE AND COAL

	Cents, 1918	Cents, 1917	Cents, 1916	Cents, 1915	Cents, 1914	Cents, 1913	Cents, 1912	Cents, 1911
Iron ore, head of Lake Superior to Ohio ports, gross ton	100	100	50	40	50	55	50	60
Iron ore, Marquette to Ohio ports, gross ton	90	90	45	35	45	50	45	55
Iron ore, Escanaba to Ohio ports, gross ton	75	75	35	25	35	40	35	45
Coal, Ohio ports to Lake Michigan ports, net ton	55	50	30	30	30	30	30	30
Coal, Ohio ports to Duluth, net ton	48	42.5	30	30	30	30	30	30

AVERAGE DAILY FREIGHT RATES ON GRAIN AND LUMBER

Wheat, Duluth to Buffalo, bushel	4.67	5.13	4.18	2.25	1.14	2.01	2.02	1.1f
Wheat, Chicago to Buffalo, bushel	3.82	2.50	3.08	1.20	1.13	1.43	1.39	1.08
Lumber, head of lakes to Lake Erie ports	491	450	364	261	225	256	276	260

a decrease of 1,204,357 gross tons is shown.

The total coal movement in 1918 was 33,337,127 net tons against 33,160,262 in 1917. Last year's shipments included 29,388,422 net tons of soft coal and 3,948,705 net tons of hard coal. The total grain movement in 1918 was 245,292,954 bushels, or 6,548,680 net tons against 262,855,601 bushels, or 7,161,716 net tons in 1917.

The iron ore traffic on the Great Lakes from 1913 to 1918 is completely shown in the accompanying tables. In 1918, a total of 61,156,732 gross tons of ore was shipped from upper lake ports. This is a slight decrease over the amount shipped the previous year, which was 62,498,901 gross tons, the decline being 1,342,169 tons or less than 2 per cent. Of the total tonnage of ore carried in lake freighters, Lake Michigan ports received 11,609,822 and Lake Erie ports 48,183,015 gross tons. The amount of ore on Lake Erie docks at the close of navigation in 1918 amounted to 10,455,122 gross tons. This is a slight increase over the amount on dock on Dec. 1, 1917, when 10,326,349 gross tons were stocked.

Shipments of iron ore from Lake Erie docks to furnaces from May 1 to Dec. 1, 1918, amounted to 43,349,912 gross tons. The shipments from these docks between Dec. 1, 1917, and May 1, 1918, aggregated 4,704,330 gross tons, making total shipments of 48,054,242 gross tons from these docks to furnaces in the year ended Dec. 1, 1918. Comparative figures are: 5,395,528 gross tons between Dec. 1, 1916, and May 1, 1917; 43,258,742 gross tons between May 1 and Dec. 1, 1917; 48,654,270 gross tons in the 12 months ended Dec. 1, 1917.

Taken as a whole, the season just passed was an uneventful one for in spite of the speed necessary in transporting freight with a reduced fleet, serious accidents were few. The efficiency of operation that was made possible through co-operation permitted the ore movement to be completed early and to be held at the minimum necessary for furnace operation. The grain movement was retarded since elevators and other storage facilities on the Atlantic seaboard were congested through inability to secure ocean tonnage. Owing to these conditions, many vessels carried storage grain cargoes early in November, thus losing an extra trip. At the end of the 1918 season, 121 vessels were docked at Buffalo with 40,385,269 bushels of grain aboard. At Georgian bay ports, Goderich, Detroit, Toledo, Fairport, Erie and Port Colborne there are 71 vessels holding 23,856,929 bushels of grain.

By the first of November, the boats had practically met their emergency transportation problems. The bulk of the ore had been transported, estimated requirements toward the end of the season being pared to release vessel tonnage for imperative needs. Only 4,279,025 tons were handled in November against 7,333,828 tons in November, 1917; and 6836 tons in December against 911,475 tons in December, 1917. The ore movement showed a comparative increase on Nov. 1, 1918, of 2,617,273 tons over the same period of 1917 but at the close of the season the 1918 total showed a comparative decrease of 1,342,169 tons.

The results of the 1918 season on the lakes are a tribute to private management. Freight demands were met at a time when national necessity demanded such a result. Rates have advanced somewhat during the past few years but the cost of transporting bulk freight on the Great Lakes is approximately one-tenth the lowest freight charge over the railroads. From the head of the lakes to Buf-

Iron Ore Traffic on Great Lakes in 1918

IRON ORE SHIPMENTS FROM UPPER LAKE PORTS, GROSS TONS

	1918	1917	1916	1915	1914	1913
Escanaba	6,774,969	7,156,854	7,457,444	5,649,289	3,664,451	5,399,444
Marquette	3,457,054	3,207,145	3,858,092	3,099,589	1,755,726	3,137,617
Ashland	7,565,608	7,597,841	8,057,814	5,146,772	3,363,419	4,338,230
Superior	14,068,341	13,978,741	12,787,046	8,342,793	11,309,748	13,788,343
Duluth	20,567,288	20,567,419	21,837,949	15,437,419	6,318,291	12,331,126
Two Harbors	8,723,472	9,990,901	10,735,853	8,642,942	5,610,262	10,075,718
Total	61,156,732	62,498,901	64,734,198	46,318,804	32,021,897	49,070,478

IRON ORE RECEIPTS AT LAKE ERIE PORTS, GROSS TONS

	1918	1917	1916	1915	1914	1913
Detroit	444,936	418,151	425,579	459,877	332,564	363,001
Toledo	2,608,497	2,445,602	2,035,160	1,158,374	773,711	1,084,215
Huron	1,620,712	1,631,395	1,324,112	695,865	617,363	687,485
Lorain	3,494,370	3,831,244	4,613,929	3,517,258	1,677,988	3,709,213
Cleveland	9,681,882	9,077,161	10,669,745	7,504,697	5,519,698	8,812,583
Fairport	1,853,465	2,311,179	2,580,647	2,001,103	1,558,134	2,037,126
Ashtabula	11,001,574	10,251,304	11,474,268	7,813,101	5,318,788	8,336,126
Conneaut	6,650,895	8,729,754	9,588,341	8,573,509	6,263,480	7,849,303
Erie	1,809,619	2,079,227	1,525,031	709,875	260,991	713,904
Buffalo	8,845,775	7,843,215	7,432,220	5,339,724	2,913,273	5,506,691
Port Colborne	171,287	194,627	138,240	196,077	166,665	.....
Total	48,183,015	48,812,859	51,807,272	37,967,460	25,402,655	39,099,647

IRON ORE RECEIPTS AT LAKE MICHIGAN PORTS, GROSS TONS

	1918	1917	1916	1915	1914	1913
So. Chicago, Ill.	6,113,492	7,030,174	7,740,877	4,195,976	3,060,587	5,572,866
E. Jordan, Mich.	33,940	35,792	38,573	37,658	38,158	28,444
Boyne City, Mich.	34,137	44,437	43,788	40,401	50,098	45,028
Elk Rapids, Mich.	.....	.....	.....	.....	28,437	.....
Milwaukee	166,626	224,570	239,219	187,286	93,121	234,591
Ind. Harbor, Ind.	1,413,392	900,692	793,215	689,226	661,054	455,252
Gary, Ind.	3,848,295	3,883,082	2,718,185	2,421,924	1,631,564	2,365,551
Total	11,609,822	12,118,747	11,573,857	7,572,471	6,109,019	8,701,732

IRON ORE ON LAKE ERIE DOCKS DEC. 1, GROSS TONS

	1918	1917	1916	1915	1914	1913
Toledo	399,839	399,479	394,869	311,799	580,600	349,047
Sandusky	.....	.....	.....	1,871	2,471	2,472
Huron	607,233	556,765	590,743	558,692	433,769	441,541
Lorain	828,384	978,108	1,076,105	824,988	548,097	694,704
Cleveland	2,117,176	1,914,071	1,936,906	1,795,962	1,757,543	1,930,720
Fairport	510,855	536,580	474,930	413,994	406,124	478,014
Ashtabula	3,292,738	3,435,624	3,266,752	2,870,204	2,749,315	3,202,807
Conneaut	1,703,701	1,544,706	1,363,550	1,216,686	1,160,639	1,248,032
Erie	439,094	519,698	625,193	589,355	484,467	594,613
Buffalo	525,947	441,318	438,712	326,800	234,880	319,726
Total	10,455,122	10,326,349	10,167,760	8,910,351	8,407,905	9,261,676

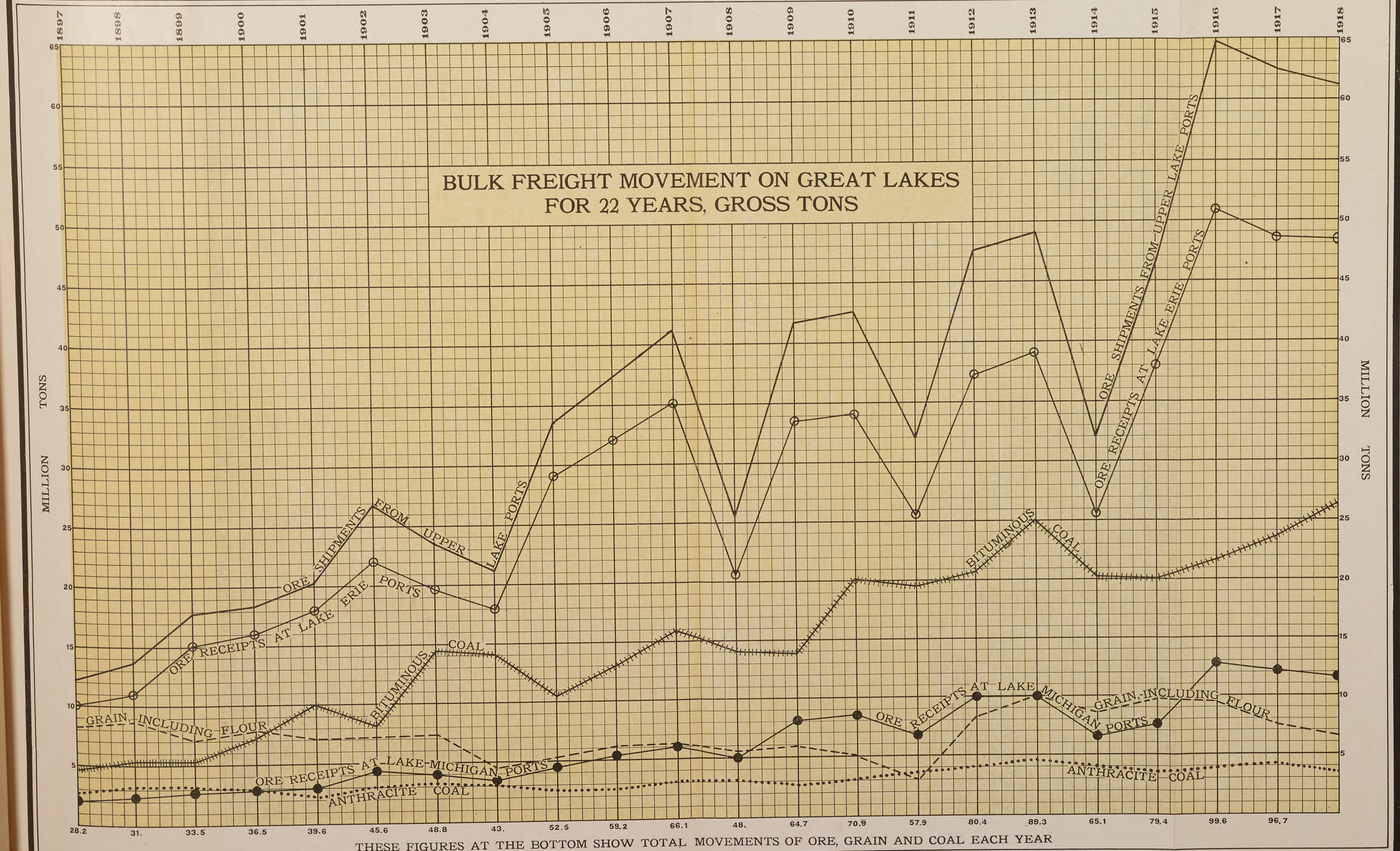
Average Ore Cargo

Year	Gross tons	Year	Gross tons
1918	8371	1907	7516
1917	8231	1906	6973
1916	7080	1905	6101
1915	6841	1904	5272
1914	6523	1903	5668
1913	6411	1902	4899
1912	6244	1901	4459
1911	5716	1900	3783
1910	5593	1899	3803
1909	7777	1898	3517
1908	8325	1897	3556

D. M. & N. docks only up to 1910.
All docks 1910-1918.

Buffalo Grain Receipts

	1918	1916
Flour, bbls.	6,607,997	6,957,432
Wheat, bu.	68,267,376	138,668,781
Corn, bu.	2,027,920	3,527,207
Oats, bu.	13,544,256	22,036,301
Barley, bu.	3,244,636	11,709,053
Rye, bu.	7,992,097	1,477,346
Total, bu.	95,066,284	177,418,688
Flour to wheat, bu	33,039,985	34,787,160
Flaxseed, bu.	2,956,409	9,564,147
Grand total, bu.	131,065,678	221,769,995



THESE FIGURES AT THE BOTTOM SHOW TOTAL MOVEMENTS OF ORE, GRAIN AND COAL EACH YEAR

falo the voyage is approximately 1000 miles. For transporting grain this distance, the lake vessel owners have received 5½ cents a bushel. The charge for carrying coal from the lower lake ports to the ports of Lake Superior and Lake Michigan varies from 48 to 65 cents a ton; no more than the average cost of unloading a ton of coal from a wagon and dumping it into the consumer's cellar.

In 1918, lake operators, after committees for handling coal, grain and ore were organized, proceeded to form a central directing organization called the Ore and Coal exchange. Its function was that of a single, directing operating head. Under it were operating committees for various trades. These committees met daily at luncheon and disposed of each day's problems as they arose. By this method, vessel tonnage was provided where it was needed the most and the interests of the different trades handled in the order of their urgency. In view of the continuation of the railroad administration for some time to come, and also as the emergency promises to continue in lake transportation, many of the carriers approve centralized control being maintained for some time.

No lake vessels are under construction at present so the tonnage available on the lakes in 1919 will not be increased. In the face of a tonnage demand as great as existed in 1918, this fact will contribute to the continuation of the emergency and thus support the stand in favor of extending the 1918 method of operation through the 1919 season.

Each ship line on the Great Lakes, shippers of ore, coal, grain and limestone, and the railroads were represented at the daily luncheons of the operating committees. At these meetings, the tonnage situation was thoroughly canvassed and arrangements made to place vessels in the trades and at the ports where they were needed.

The central ore committee met daily throughout the shipping season. The docks made a daily report to this committee of the rail cars loaded with ore; the railroads filed a daily report of the number of loaded cars in transit, and the furnaces reported on the number of cars unloaded and on hand at the furnaces. In this manner a constant supervision of the rail shipments was had, the ore men being able at a glance to see where the congestion was or better still where it threatened and the new consignments of ore from the head of the lakes routed accordingly. Rail congestion through the season was held at a minimum.

The result of this system of co-operation was readily visible. The weekly receipts of ore at Lake Erie docks during 1918 for shipment inland were between 1,300,000 and 1,400,000 tons, making an average daily receipt of some 200,000 tons. It would probably have been impossible for the railroads to have cleared Lake Erie docks of this enormous tonnage had not the system of daily reports and routing obtained.

The net charge for carrying ore from the head of the lakes to Lake Erie ports during 1918 was $1 a ton. A charge of 10 cents a ton is made for unloading. In 1914 and 1915, the gross charge was 50 cents and this was advanced to 60 cents in 1916. In 1917 the rate was $1.10, the same rate as that maintained in 1918.

Whether the organization created to handle lake traffic during the season of 1918 will continue in any permanent form depends largely on the stand taken by the government and by the railroads. A clearer definition of the government's attitude may be necessary while it is evident that the co-operation of the ore people would be of less value if the rail carriers did not continue their co-ordinate work.

Navigation on the lakes opened in 1918 with a fleet of 548 vessels having a total carrying capacity for one trip of 3,225,763 gross tons. No vessels were launched while eight were sunk or taken to the coast, reducing the capacity to 3,187,021 gross tons.

The heaviest loss of the season was the C. A. Congdon, which went ashore with a cargo of wheat at Canoe Rocks, near Passage island, Lake Superior, on Nov. 6. The vessel broke in two and was a total loss.

Size of Great Lakes Bulk Freighter Fleet

Year	No. of vessels Jan. 1	Launchings number	Subtractions, number	Carrying capacity of new vessels, gross tons	Carrying capacity, subtracted, gross tons	Total carrying capacity, one trip gross tons
1919	540	..	..	.....	.....	3,187,021
1918	548	..	8	.....	38,742	3,225,763
1917	540	11	3	126,000	9,822	3,109,585
1916	546	7	13	82,000	45,734	3,073,319
1915	546	1	1	10,000	3,104	3,066,423
1914	548	7	9	61,000	26,166	3,031,589
1913	572	4	28	28,000	120,919	3,124,508
1912	589	5	22	49,500	60,945	3,135,953
1911	592	5	8	55,000	29,477	3,108,330
1910	589	20	17	194,500	60,617	2,973,447
1909	587	17	5	157,300	37,197	2,853,344
1908	567	24	4	101,400	14,837	2,766,781
1907	542	40	16	368,000	46,973	2,442,754
1906	514	40	18	381,000	40,987	2,065,111
1905	518	29	33	260,200	114,374	1,919,285

Furnace Shipments

ORE FORWARDED TO FURNACES FROM LAKE ERIE DOCKS MAY 1-DEC. 1

Year	Gross tons	Year	Gross tons
1918.....	43,349,912	1915.....	35,149,412
1917.....	43,258,742	1914.....	22,914,887
1916.....	44,982,917	1913.....	35,747,800

Lake Erie Receipts in December

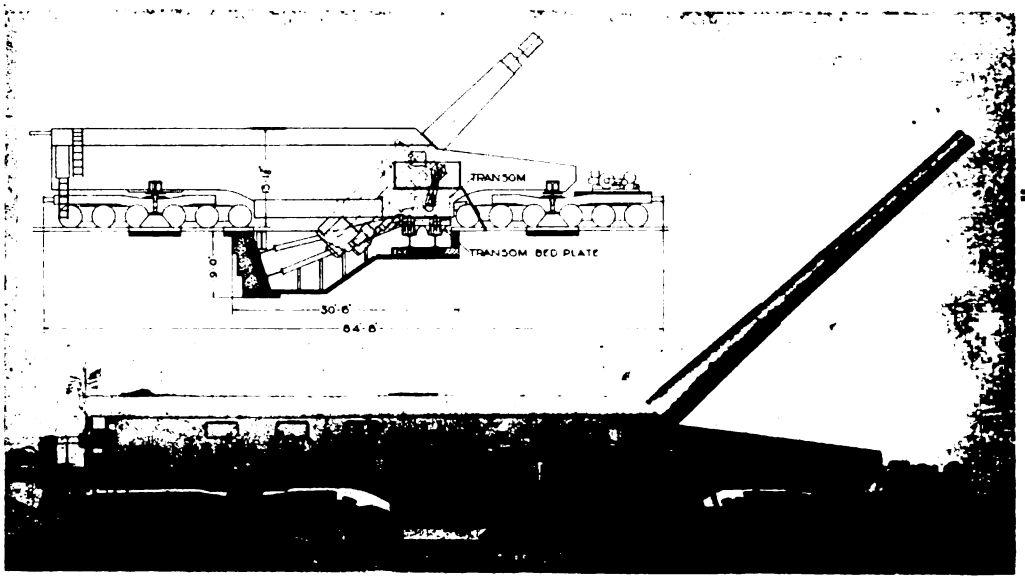
Ports	Tons
Buffalo	31,354
Erie	15,919
Conneaut	.....
Ashtabula	17,216
Fairport	.....
Cleveland	47,373
Lorain	.....
Huron	.....
Toledo	11,523
Detroit	.....
Total	123,385

Average Stay in Port

VESSELS OF PITTSBURGH STEAMSHIP CO.

	1918 hrs. min.	1917 hrs. min.	1916 hrs. min.	1915 hrs. min.	1914 hrs. min.	1906 hrs. min.
Average stay lower lake ports	23 40	25 58	20 30	17 41	17 18	36 15
Average stay upper lake ports	9 41	8 42	9 42	7 46	9 12	22 25
Average time in port receiving and discharging cargoes....	33 21	34 40	30 12	25 27	26 30	58 38
	Gross tons	Gross tons	Gross tons	Gross tons	Gross tons	Gross tons
Average cargo carried.....	8,625	8,465	7,989	7,534	7,572	5,954
Largest cargo carried.....	.....	13,503	13,521	12,087	12,222	13,333
Fastest loading record.....	.....	12,032	11,379	8,179	10,613	9,277
	hrs. min.	hrs. min.	hrs. min.	hrs. min.	hrs. min.	hrs. min.
	.. ..	2 5	2 15	1 ..	1 30	0 70
Rate of fastest loading record per hour	.....	.....	5,057	8,179	7,075	7,288

How Navy Fought in France With Fleet of Huge Land Batteries



From plan to performance was but the work of a few months — Here the first battery is shown at Sandy Hook.

Bluejackets manned the railroad dreadnaughts as they hurled 14-in. shells into the ranks of the "supermen."

BY WALTER S. DOXSEY

THE American navy took a lesson from Mohammed's notebook during the great, world war. The battle in France could not come to the navy, so the navy went to the battle. It fought the *boche*, who dared not give battle on the ocean, with its dreadnaughts of the land, huge naval guns mounted on brobdingnagian trucks, manned by bluejackets eager for a fight, afloat or ashore.

The war was fought with new and spectacular devices of destruction, the airplanes, the tanks, the submarines, familiar to us all, but the story of how the American navy put a "fleet" of its batteries in France forms another chapter with many surprises and thrills, none the less interesting because the veil of military secrecy was drawn over the exploit at the time of its execution.

NO engineering achievement more characteristic of the creative and productive phase of the United States' role in the war is furnished than the design and construction of the five 14-inch naval railway batteries built by the navy and operated by naval personnel in conjunction with General Pershing's forces in France.

In a nutshell, each battery consists of a 14-inch, 50-caliber, naval rifle carried on a special railway mount, together with suitable ammunition cars and auxiliary cars. The gun, which weighs 96 tons, has a muzzle velocity of 2800 feet per second and a maximum range of 52,000 yards, approximately 29.57 miles. It is so supported in the mount that it may be elevated from horizontal to 45 degrees. When mounted on its foundation the gun may be fired at any angle within a range of from 10 to 45 degrees. At angles of elevation ranging from zero to 15 degrees the gun may be fired with no support other than the trucks on the rails.

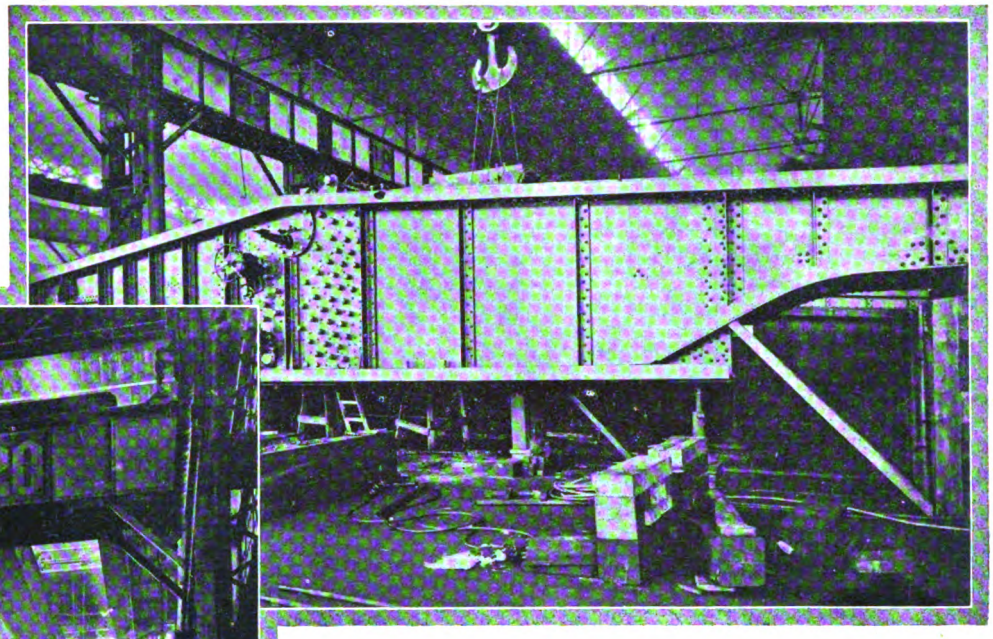
The railway battery and its accessories were designed to provide utmost freedom from dependence on a supply base. With the exception of a small air compressor and winch, driven by a single gas engine, the mechanical functions of the battery are performed solely by hand power. Each unit was provided with ample supplies and spare parts, augmented by stores and equipment carried on a staff train which accompanied the five units of the battery. The cars of the battery train provide facilities for erecting the foundation and making repairs, and quarters for the personnel. The scope of the battery is indicated by the following list of cars which comprise a single unit: Locomotive, gun car, two ammunition cars, construction car, construction car with crane, sand and log car, fuel car, battery kitchen car, three berthing cars, battery headquarters car and a workshop car for repairs.

One of American Navy's Finest Exploits

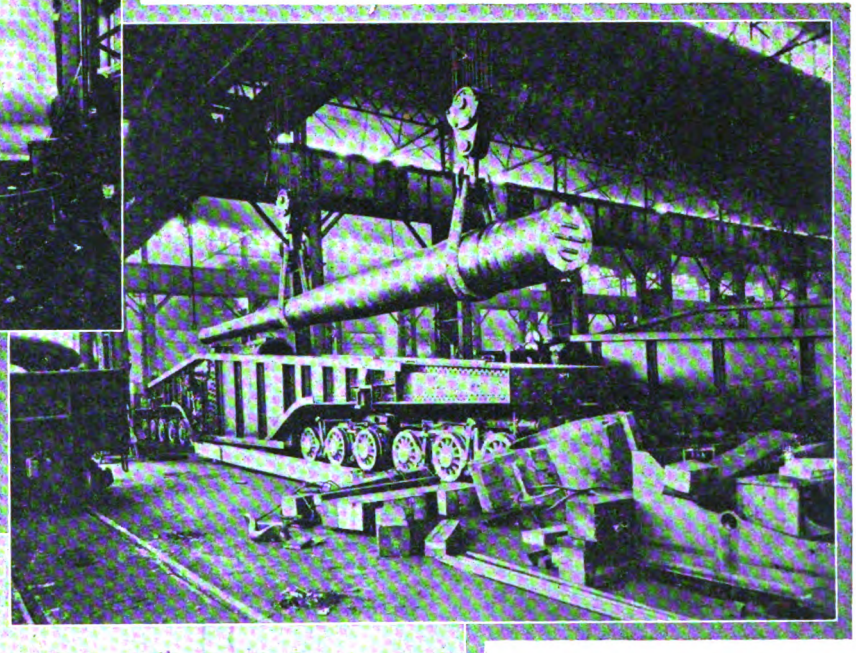
HERE is the first official description of one of the finest exploits of the war—how the American navy in an incredibly short time put five 14-inch naval railway batteries in France and accomplished effective work against the Germans, after British and French engineers had despaired of success in a similar task. How the navy might render more aid was always one of the problems during the United States' participation in the war, and constant striving led to this achievement, of which Secretary Daniels recently said, "the whole American people as well as the navy might well be proud."

In the war's early stages, particularly, there was the possibility of failure through the seemingly insurmountable obstacles to be overcome. Now when it is disclosed, one of the brightest chapters in the history of the navy is revealed. The author of this article, Walter S. Doxsey, is a lieutenant stationed at the naval gun factory. His description of the engineering details involved is no less interesting than his delineation of the stirring features of this shore fleet in action.

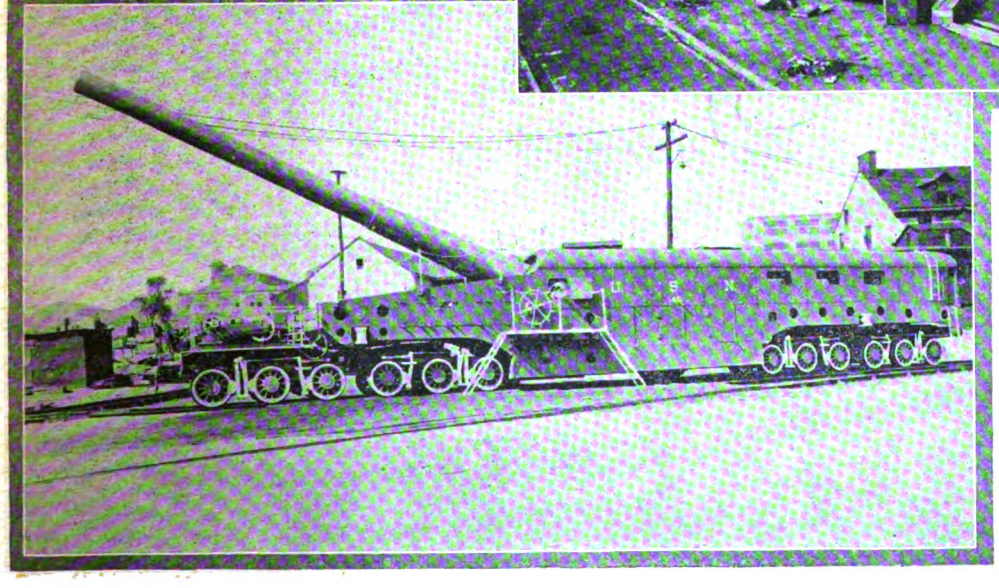
Practically completed gun car in assembly shop of the Baldwin Locomotive works. The winch on the forward truck is used to pull the car back to position after it has been fired on the track



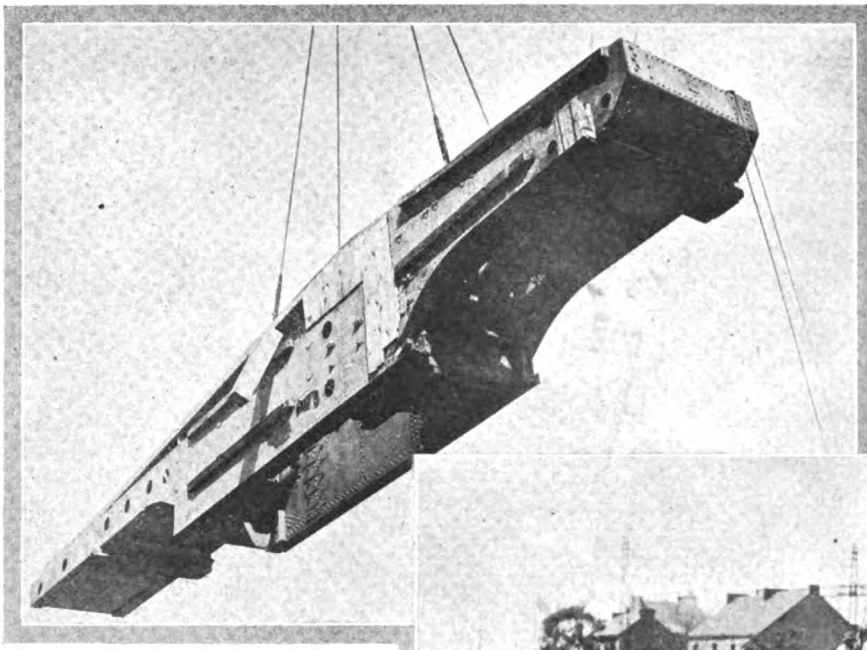
Completed girder in the assembly shop. The gun slide is being lowered into place. Handwheel and gear train are used in elevating the gun



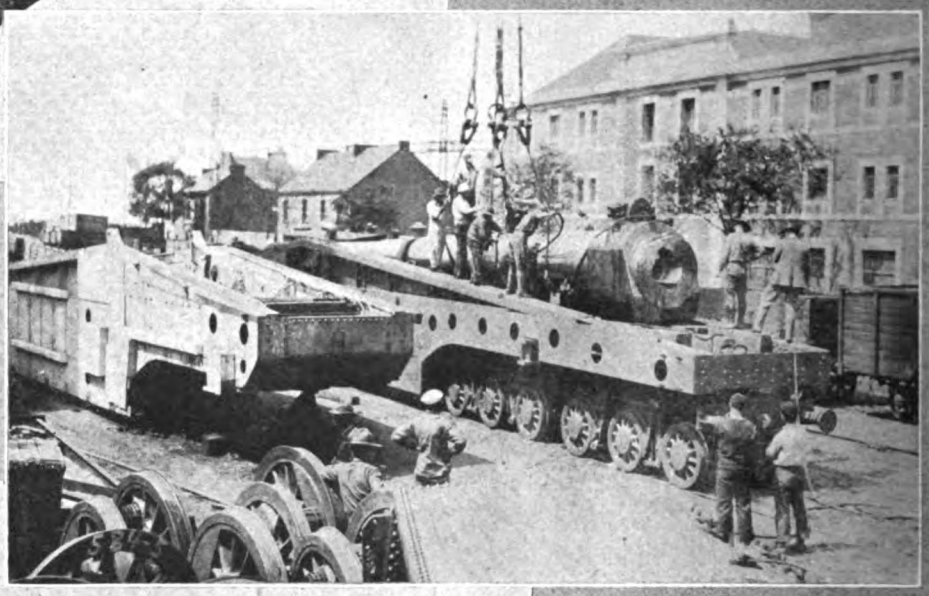
First 14-inch railway mount (lower photograph) completely assembled and ready for final inspection at manufacturer's plant



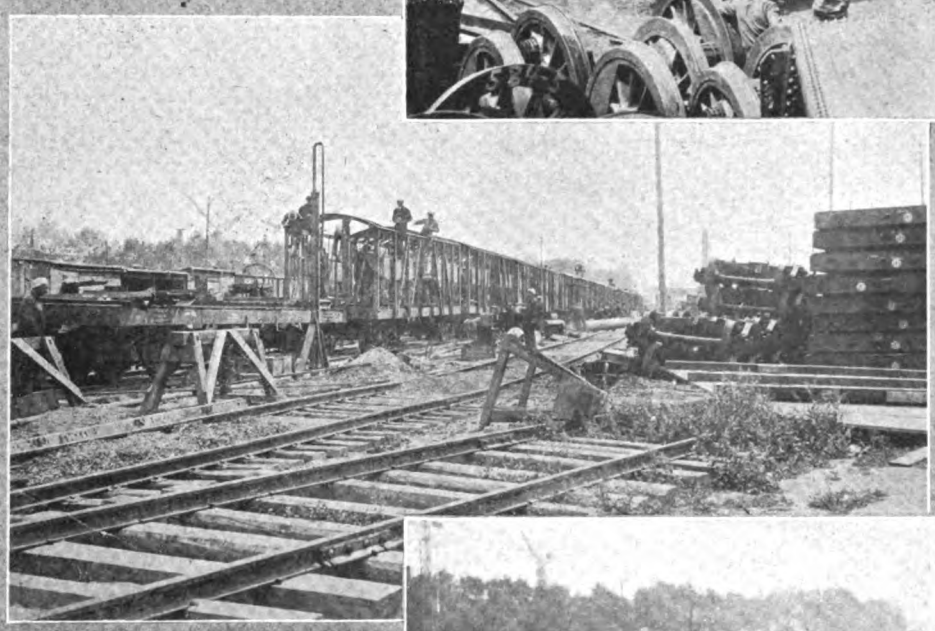
Assembled girders in the shop. The ability of cranemen is taxed to the limit in placing the huge gun into its slide. The guns used on the shore mountings are over 60 feet long and weigh 96 tons



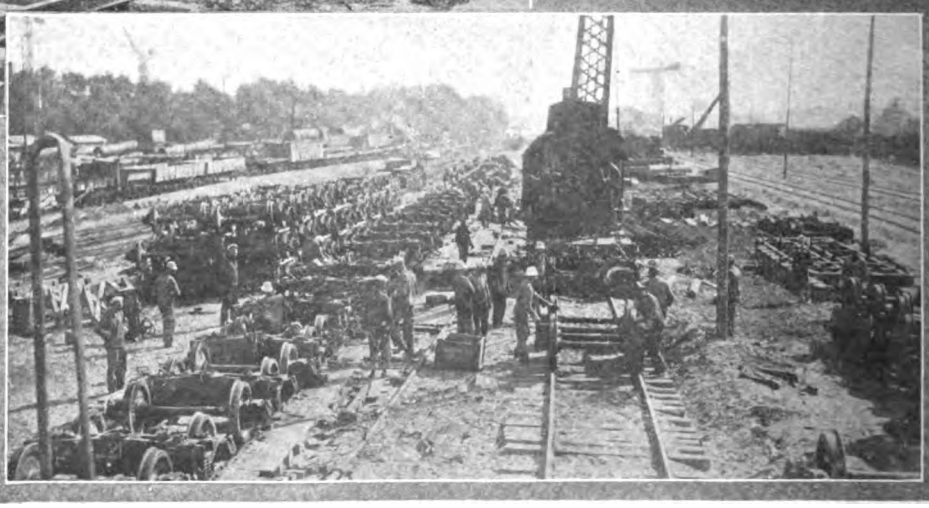
All the way from factory to France, speed and ingenuity featured the construction, assembling and handling of the American navy's 14-inch railway batteries. Here the camera tells the story of what happened at St. Nazaire when the bluejackets took their "battleships" ashore. Ponderous implements of destruction were swung into the streets of the picturesque port and quickly rolled away to the front



Swinging the huge girder from the deck of the transport to the dock

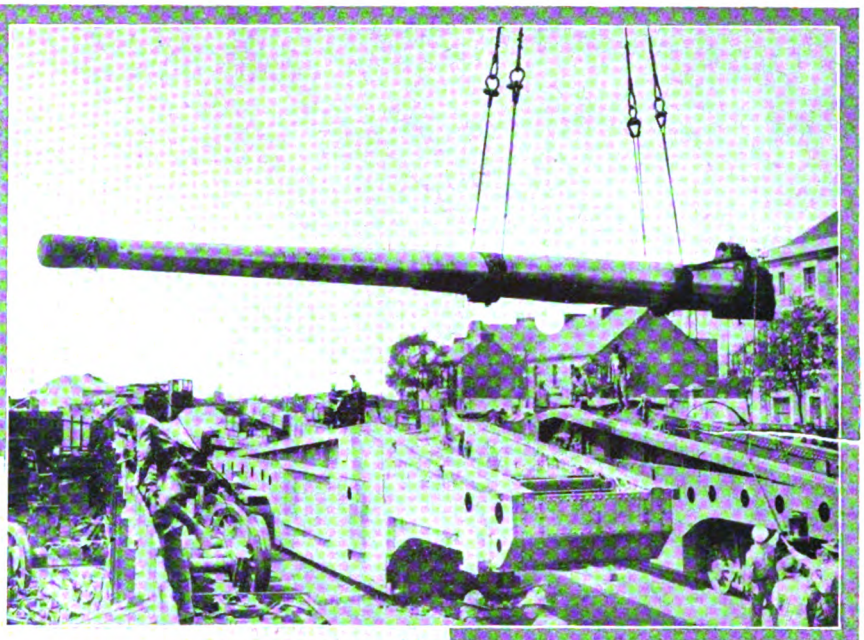


The United States was the first of the allies to develop the necessary railway mountings for high-powered long-range guns in France



Auxiliary battery cars in various stages of completion, and (at the right) wheels and axles for the auxiliaries stored ready for assembling

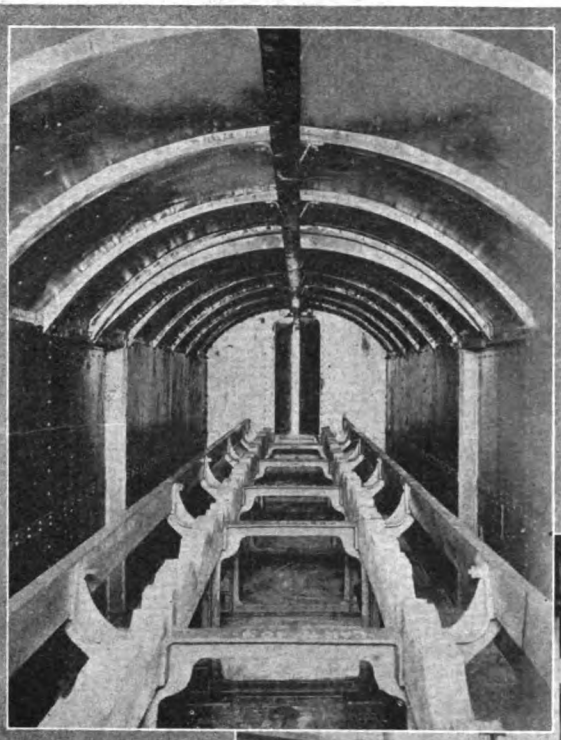
Unloading a 14-inch gun from a transport at St. Nazaire. This gun weighs 96 tons, has a muzzle velocity of 2800 feet per second and a maximum range of 52,000 yards. At angles of elevation ranging from zero to 15 degrees the gun may be fired with no other support than the trucks on the rails. When mounted on its special foundation it may be fired at any angle within a range of from 10 to 45 degrees



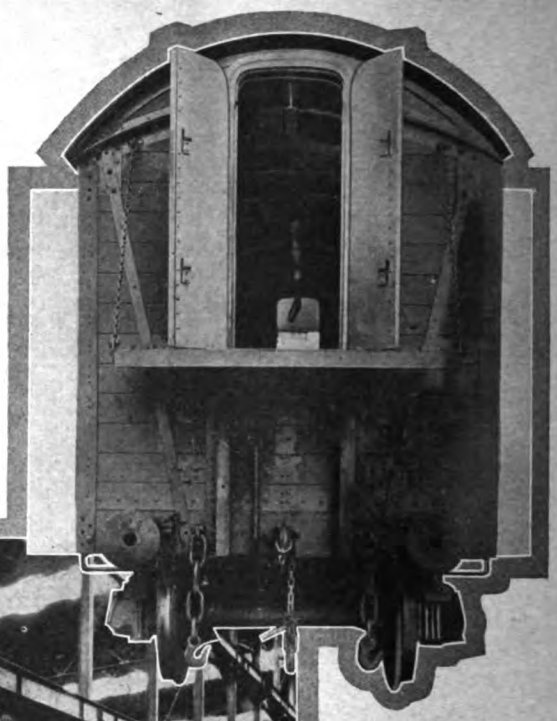
Having no flat cars of sufficient capacity to carry the 14-inch guns the erecting crew at St. Nazaire used the gun cars to carry the guns from the dock to the assembly shop

Assembled trucks ready to receive the main girders. The assembled girders are approximately 85 feet long, 13 feet high and 9 feet wide. Each 12-wheel truck weighs over 20 tons

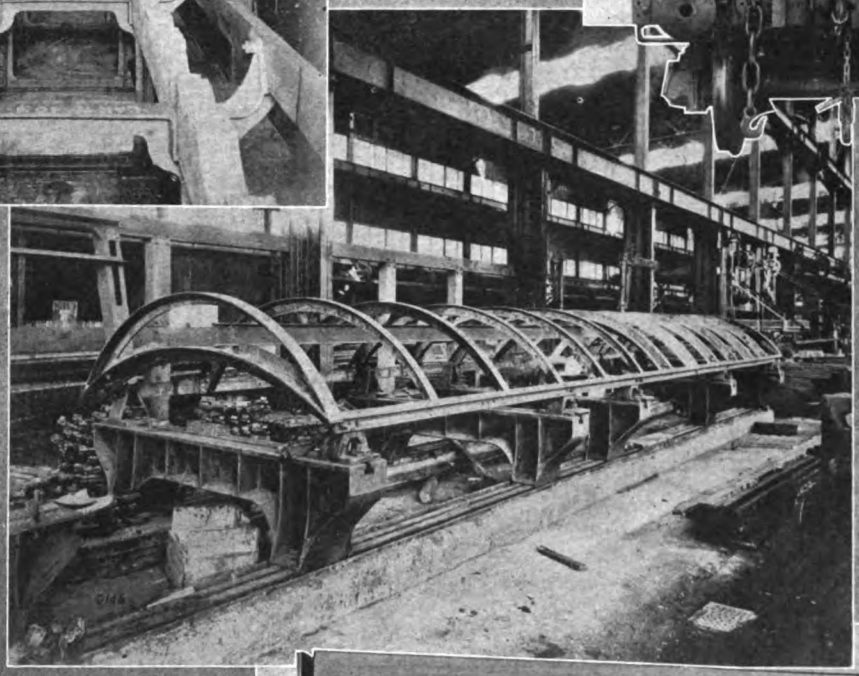
Gun car on temporary trestle at St. Nazaire. A special 12-wheel truck was necessary to carry the 535,000-pound car so that it could pass safely over any railroad in France



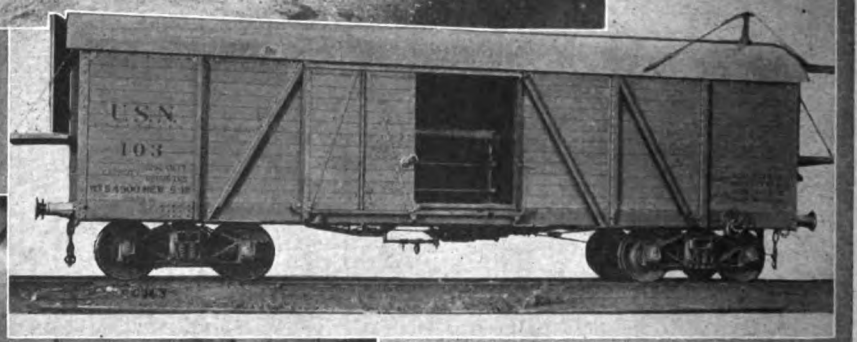
Interior of ammunition car showing projectile racks and space beneath for storing powder. The 1400-pound projectiles are conveyed to the gun car by means of a trolley hoist supported by the longitudinal I-beam.



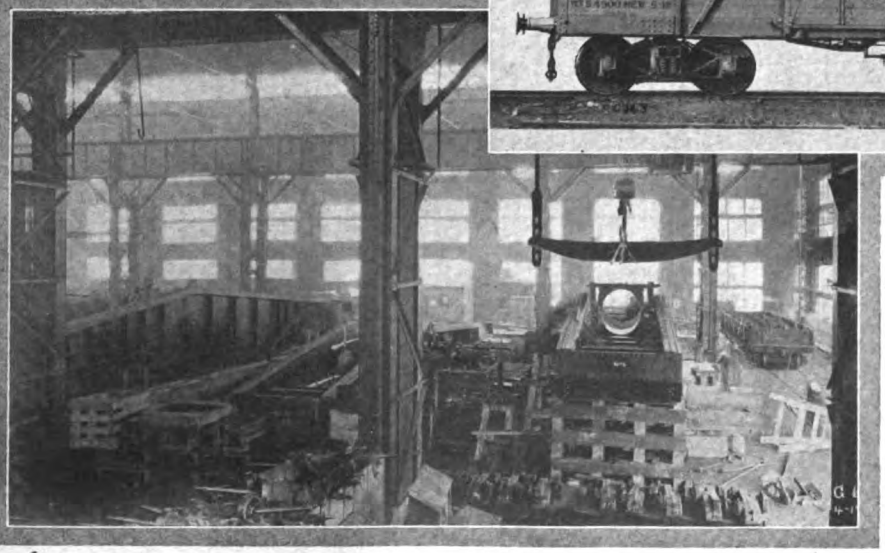
End and side views of ammunition car showing powder passing platforms. The car is lined with ¼-inch bullet-proof steel.



Seventy-two auxiliary cars were built to accompany the five 14-inch naval batteries, all of special construction commensurate with requirements for heavy work under fire.



How the framework for the roof of the ammunition car was constructed



Construction of the land batteries and the auxiliary cars in record time was one of the most important engineering achievements of the United States in the war. The factories, working under the navy department's experts, are credited with doing remarkable work

The staff train which operates in conjunction with five battery trains is made up of the following: Locomotive, staff quarters car, staff kitchen and dispensary car, spare parts car, machine shop car, staff construction car, staff workshop car, staff commissary car and staff berthing car.

The locomotives and cars were designed to conform with the standards of the French state railroads. They were also made to comply with American regulations to permit of transportation from erecting shops to tidewater. Exclusive of the gun car, the various cars are standard flat cars, gondolas and box cars, similar to those supplied to the American expeditionary forces, and may be used in conjunction with European equipment.

WHEN the question of how to use available 14-inch naval rifles was raised, of how their tremendous destructive power might be turned to advantage, the project was in no more tangible form than a mere suggestion of the possibility of some sort of a shore mounting. For months naval ordnance designers had been analyzing the reports of the 15-inch German naval gun that at regular intervals fired into the town of Dunkirk. The steady decrease in range of this gun proved that it was mounted on a fixed mounting and thus limited in its effectiveness, until at last it was harmless. A mobile mounting was the answer to the American problem. The project was outlined by the naval gun factory and a prospectus was submitted to the bureau of ordnance with the estimate that designs could be made and five complete units ready in every respect for service in six months.

On Jan. 25, 1918, 27 working days after orders for the project were issued, all data necessary for bidders were completed. These data consisted of 136 standard bureau of ordnance drawings, 30 assembly lists, 11 sketches and 18 specifications. Bids were opened Feb. 8, but as these were unsatisfactory, chiefly because the bidders hesitated to assume the responsibility of completing such a large contract within the prescribed time, bids were again called for and contracts were placed with the Baldwin Locomotive Works for five gun cars, seven sets of foundations and six locomotives. The Standard Steel Car Co. was awarded a contract for the 72 auxiliary cars for the battery trains and staff train. Actual work was started by the contractors Feb. 20. Five days later the naval gun factory forwarded to them the completed set of drawings comprising 163 drawings, 11 sketches, 30 assembly lists and 21 specifications. On April 25 the country learned through newspaper reports that American genius had again triumphed, for on that day the first 14-inch naval railway battery was successfully proved at Sandy Hook.

SURPRISING as it may seem, during three years of warfare in which heavy artillery had played such a prominent role, the allies had developed no railway mountings for high-powered, long-range guns. Railway mounts in use carried only medium-size guns of comparatively short range, or guns of the howitzer type. Both the English and French had developed designs of mountings for large caliber rifles; these plans, however, left unsolved many important features of absorbing the recoil forces, and consequently the guns and mountings were not built.

At the outset the American design was restricted by three fundamental factors: The batteries had to be completed within six months; the gun car had to be so designed as to permit of quick transportation over the entire system of French railways, and the battery had to be as free as possible from dependence upon power-driven auxiliaries. When the naval gun factory began its investigations it was confronted by an amazing lack of coherence in the information obtained from the many sources available. But little assistance could be rendered by precedent; therefore it was necessary to create a design unlike anything in existence.

The time factor dictated the use of as many standard 14-inch gun fittings as possible. The huge steel supporting plates or deck lugs were already cast and the gun slides for battleships under construction were already completed and in store at the Washington navy yard. Since, for example, the enormous steel casting for a gun slide, weighing nearly 25 tons, takes months to cast and machine it was decided to use the finished slides available. These slides, intended for turret mountings on battleships, are designed to provide for a 44-inch recoil of the guns. Provision had to be made in designing the railway mounts for elevating the guns to 45 degrees to secure maximum range, hence, in adapting these slides with the accompanying long recoil of the guns it was necessary to provide a pit beneath the gun car when firing at angles above 15 degrees. When firing on the track, the recoil forces are absorbed by the resistance of tightened brakes as the car rolls back on the rails for a distance of approximately 25 feet.

IN designing the two 34-ton side girders which, with suitable transverse struts, comprise the main frame of the car, two factors, other than the usual consideration of stresses imposed by live and dead loads, had to be considered. Although bridge and tunnel clearances of the French state railways indicated certain proportions of the girders, it was learned that despite the fact that a car might clear these obstacles, the platforms and switch towers imposed additional limiting restrictions on the design. The girders also had to be designed to accommodate the deck lugs, since they were to become an integral part of the car structure.

The designers at the naval gun factory were in frequent consultation with structural engineers and fabricators while the girders were being designed, and it is interesting to note that although the design was approved by the foremost experts in the country, when the bids were awarded the contractor immediately requested revision since no mill desired to attempt to roll the required shapes. The revisions were worked out over night by the gun factory and the special shapes originally required were eliminated. In their place were employed commercial 8 x 8-inch angles fabricated at the Pittsburgh plant of the American Bridge Co. The assembled girders are approximately 85 feet long, 13 feet high, and 9 feet wide.

Originally it was considered practicable to apply standard locomotive trucks with modifications to the gun car, essentially a truck builder's job. Here again the assistance of the ordnance designers was necessary and a satisfactory 12-wheel truck weighing over 20 tons was developed to carry the total weight of the car, 535,000 pounds, so that it could safely pass over any railroad in France or this country.

ELEVATION of the gun to 45 degrees demanded a modification of the counter-recoil system, since this angle exceeded the maximum then obtaining in turrets. The gun slides to be used provided for spring counter-recoil which was incapable of holding the gun on battery at 45 degrees elevation, much less returning it after full recoil. A spring-pneumatic system was quickly designed and functioned perfectly on preliminary test.

As previously pointed out, when the

gun is fired at angles of elevation above 15 degrees, a pit beneath the track is necessary to provide clearance for the recoil. Under these conditions, the weight of the car is transferred from the trucks by means of lifting jacks to a steel and timber foundation which, exclusive of the timber grillage, weighs approximately 25 tons, and is erected with the aid of a special construction car equipped with a hand-operated crane capable of lifting 14,000 pounds. Excavation of approximately 103 cubic yards of earth is required in erecting the foundation.

Lack of power-driven auxiliaries presented difficulties in ramming home the 1400-pound shell so securely as to preclude its backing out when the gun was fully elevated. These difficulties were overcome by the development of a shell-loading device operated by hand. When firing, the ammunition car is coupled directly behind the gun car. Shells are carried from a trolley hoist in the ammunition car to the breech of the gun on a tray, with rollers, running on a monorail track and pushed by a crew. The track is an H-section structural shape supported on pedestals in the gun car at such a height that the shell in the tray is aligned approximately with the center of the gun. The tray is pushed by a crew along the track toward the gun breech. When the car has reached the forward end of the track its progress is checked by hydraulic buffers and the impetus that has been given the shell serves to project it into its seat in the gun.

THE final and indisputable criteria of the ordnance designer's ability to transmute into a perfectly functioning machine the powerful weapon of his imagination are the acid tests of battle where the law of the survival of the fittest applies to machines as well as to men. While stories gleaned from the logs of these land battleships are yet to be made public, the meager press dispatches during the last few months preceding the signing of armistice told how these units of super-artillery hurled high-explosive shells into important centers of concentration and transportation miles behind the first and second lines of the enemy, and how at Laon, at Soissons and finally at Sedan the orderly retreat of the Hun became a precipitous rout.

These engagements on the western front fulfilled the utmost hopes of the naval officers and designers who conceived and built the 14-inch railway mounts; but the real vindication came immediately after the first battery had been completed. Only a few hours before the first gun car was to be pulled across the narrow neck of land which ties the point at Sandy Hook to the shore, the track spanning the neck was washed away by heavy waves from the sea not more than 50 yards distant. Bluejackets, who were to man the batteries in France, hastily replaced the rails on the soft sand bed and a locomotive with the gun car ran over the newly laid track and came to a stop on the site selected for firing. The car with its locomotive had no sooner come to a standstill when the first shell fired from a 14-inch railway battery went shrieking down the coast. The heavy gun car had proved its ability to pass safely over the poorest of road beds; it had functioned properly when fired on the tracks; and the designers knew its success on the battle front in France was assured.

Boiler Scaling Dangers

The following notice to shipmasters and marine engineers relative to precautions in connection with the scaling of boilers connected to other boilers containing steam or hot water has been issued by the marine department of the board of trade (England):

Serious loss of life has occurred from time to time among men employed in cleaning and scaling boilers which are connected to other boilers at work, either by accident or through negligence.

The fatalities have generally occurred owing to the admission (a) of steam through the boiler stop valves and (b) of hot water through the blow-down valves or cocks or through the feed check valves. In a few instances, shocks of water-hammer have occurred when the steam pipe ranges were being drained of water, causing the fracture of the stop valve on the boiler being cleaned and admitting steam into the boiler with fatal results to those working inside.

It is becoming the common practice on board ship for auxiliary boilers, or for main boilers which may be used as auxiliary boilers in port, to be scaled and cleaned while steam is in the other boilers, and it behooves engineers to take every care in order to safeguard from injury those who may be engaged working inside boilers. Under the conditions described above, reliance should not be placed on the fitting or on the tightness of nonreturn valves, as it has been found that, owing to the pulsating flow of the steam through the pipe range and the consequent hammering of the nonreturn valves on their seats, they have become so badly worn in some instances as to be useless in a very short time.

The following precautionary measures should be taken when men are employed in boilers the pipe ranges of which are connected to other boilers at work:

1. All steam stop valves, feed check valves, blow-down and scum cocks or valves on the boiler in which men are at work should be locked in the "Shut" position in such a manner that they cannot be moved from that position.

2. When steam is about to be admitted into pipe ranges connected to a boiler being cleaned, or when any of the other boilers, having their blow-down or scum pipes connected to that boiler, are about to be blown down, the men in the boiler being cleaned should be withdrawn therefrom until it is seen that no steam or hot water is passing into it from the pipes into which steam or hot water has been admitted.

Electric Propulsion

The Snell system of electric propulsion the possibilities of which are viewed with unrest in English shipping circles is to be used in particular for ships operating under such conditions that the time for loading and unloading is considerably greater than the time during which the ship is under way. This applies in particular to cross-channel navigation. Instead of a complete set of machinery in each ship, the system provides one set of transferable power-producing machinery so constructed as to be attachable to several independent hulls. Only propellers and electric motors, which form a small proportion of the total cost of machinery, are fixed in the hulls themselves and are connected during the voyage to the power-producing machinery by electric cables. The hulls of the ships may be similar to those of ordinary cargo steamers, the space usually occupied by engine and boilers being available for cargo. The power-producing plant will consist preferably of internal-combustion engines or high-speed turbines driving generators, the whole enclosed in a detachable structure of special design carried on the stern or amidship of the hull and firmly attached thereto during the voyage. It is claimed that this system insures reasonable safety against torpedo attacks.

U.S. Ships Delivered by American Yards

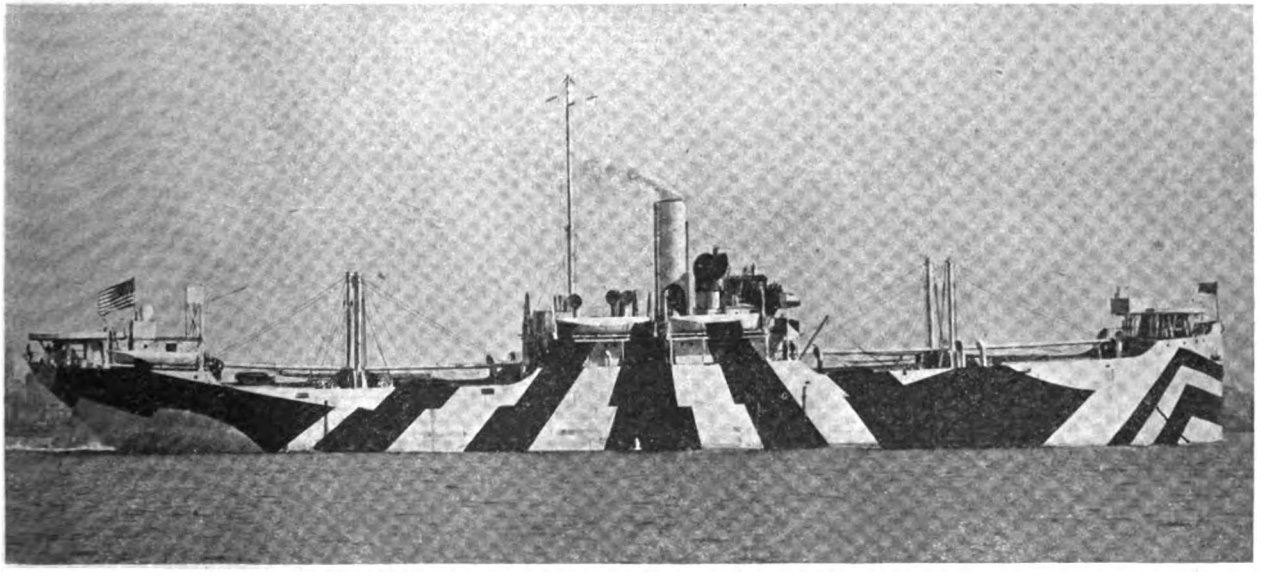
Through the courtesy of the Emergency Fleet corporation, THE MARINE REVIEW is enabled to present this compact tabulation of the output of merchant ships for the government complete to Dec. 31, 1918. This tabulation is official in every detail and is presented for the first time.

North Atlantic District

Steel

Bethlehem Shipbuilding Corp., Ltd., South Bethlehem, Pa.
Fore River Plant, Quincy, Mass.

Hull No.	Name	Dead-weight tonnage	Contract or requisitioned	Type	Date launched	Date delivered	Speed, knots	H. P., shaft or indicated	Length overall, Length between perpendiculars, Beam molded, Depth Molded, feet, inches				Draft, ft. in.
264	K. I. Luckenbach.....	11,550	Req.	Cargo	10-27-17	2- 3-18	13.00	4500 S	468-3	x 446-0	x 56-2⅛	x 27-9½	30-6 7/16
267	Katrina Luckenbach ...	11,550	Req.	Cargo	2-22-18	5-18-18	14.50	4500 S	468-3	x 446-0	x 56-2⅛	x 27-9½	30-6 7/16
268	George W. Barnes.....	9,100	Req.	Tanker	5-16-18	6- 4-18	11.68	2600 I	431-10	x 416-10¼	x 56-2	x 31-2	25-5¼
269	W. L. Steed.....	9,100	Req.	Tanker	9- 2-18	9-18-18	10.50	2700 I	431-10	x 415-0	x 56-0	x 32-9	25-6
272	Nantasket	8,500	Req.	Cargo	9-21-18	10-17-18	10.50	2000 S	406-4	x 389-0	x 54-6	x 32-6	25-0
273	Cohasset	8,500	Req.	Cargo	11- 3-18	11-30-18	10.50	2000 S	406-4	x 389-0	x 54-6	x 32-6	25-0
	Moore Plant, Elizabethport, N. J.												
115	Plainfield	3,500	Req.	Cargo	4-17-18	9-11-18	11.85	1550 I	312-0	x 300-0	x 45-0	x 25-3	19-0
116	Garfield	3,500	Req.	Cargo	7- 4-18	10-31-18	11.25	3500 I	312-0	x 300-0	x 45-0	x 25-3	19-0
	Federal Shipbuilding Co., Newark, N. J.												
955	Liberty	9,600	Cont.	Cargo	6-19-18	10- 5-18	11.00	2500 S	410-3	x 395-6	x 55-0	x 34-11	27-0
956	Federal	9,600	Cont.	Cargo	8-10-18	11-11-18	11.00	2500 S	410-3	x 395-6	x 55-0	x 34-11	27-0
957	Piave	9,600	Cont.	Cargo	9- 7-18	12-18-18	11.00	2500 S	410-3	x 395-6	x 55-0	x 34-11	27-0
	Standard Shipbuilding Co., Shooters Island, N. Y.												
2	Muscatine	7,300	Req.	Refrig.	10-20-17	5- 9-18	11.51	2500 I	392-6	x 377-0	x 52-0	x 26-9½	23-8¼
3	Ice King	7,300	Req.	Refrig.	12-22-17	6-19-18	10.50	2500 I	392-6	x 377-0	x 52-0	x 29-0	23-8¼
4	Mont Clair	7,300	Req.	Refrig.	3-30-18	6-28-18	10.50	2500 I	392-6	x 377-0	x 52-0	x 29-0	23-8¼
5	Englewood	7,300	Req.	Cargo	5-18-18	8-31-18	10.50	2500 I	392-6	x 377-0	x 52-0	x 29-0	23-8¼
6	Galesburg	7,300	Req.	Cargo	6-24-18	9-10-18	10.50	2500 I	392-6	x 377-0	x 52-0	x 29-0	23-8¼
7	Morristown	7,300	Req.	Cargo	7- 4-18	10-15-18	10.50	2500 I	392-6	x 377-0	x 52-0	x 29-0	23-8¼
8	Hickman	7,300	Req.	Cargo	7-10-18	11-13-18	10.50	2500 I	392-6	x 377-0	x 52-0	x 29-0	23-8¼
9	Monmouth	7,300	Req.	Cargo	9-28-18	12-13-18	10.50	2500 I	392-6	x 377-0	x 52-0	x 29-0	23-8¼
	Staten Island Shipbuilding Co., Port Richmond, L. I., N. Y.												
689	Snug Harbor	3,500	Req.	Cargo	5-29-17	1-22-18	9.80	1200 I	276-6	x 264-0	x 42-2⅜	x 21-11	20-9¾
692	Mariners Harbor	3,500	Req.	Cargo	2-19-18	6- 3-18	9.50	1200 I	276-6	x 264-0	x 42-2⅜	x 21-11	20-9¾
693	Sag Harbor	3,500	Req.	Cargo	5-25-18	8-31-18	9.50	1200 I	276-6	x 264-0	x 42-0	x 24-0	20-9
694	Bar Harbor	3,500	Req.	Cargo	9-12-18	12- 2-18	9.50	1200 I	274-0	x 264-0	x 42-0	x 24-0	20-9



POLAR LAND, SISTER SHIP TO THE SOUTH POLE REFRIGERATOR SHIPS FOR USE IN CARRYING SUPPLIES TO OUR TROOPS AND NOW READY FOR CENTRAL AMERICAN TRADE. PRODUCTS OF THE BALTIMORE DRY DOCKS & SHIPBUILDING CO.

U. S. Ships Delivered by American Yards

Submarine Boat Corp., Newark, N. J.

Hull No.	Name	Dead-weight tonnage	Contract or requisitioned	Type	Date launched	Date delivered	Speed, knots	H. P., shaft or indicated	Length overall, Length between perpendiculars, Beam molded, Depth Molded, feet, inches				Draft, ft. in.
547	Agawam	5,075	Cont.	Cargo	5-30-18	12-17-18	10.50	1500 S	335-6	x 324-0	x 46-0	x 28-6	22-6

Texas Steamship Co., Bath, Me.

3	Sagadahoc	9,970	Req.	Cargo	4-27-18	7- 9-18	11.00	3100 I	435-0	x 420-6	x 54-2⅝	x 31-5	26-0
4	Canibas	9,970	Req.	Cargo	7- 4-18	9-10-18	11–11.50	3100 I	435-0	x 424-0	x 54-0	x 33-9	26-0

Wood

The Foundation Co., Newark, N. J.

115	Congaree	3,500	Cont.	Cargo	6-25-18	10- 1-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
116	Coweta	3,500	Cont.	Cargo	6-25-18	9-21-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
117	Coyote	3,500	Cont.	Cargo	3-19-18	8- 1-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
118	Accoma	3,500	Cont.	Cargo	4-27-18	8-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
119	Alanthus	3,500	Cont.	Cargo	7- 4-18	10-29-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

Groton Iron Works, Noank, Conn.

125	Hokah	3,500	Cont.	Cargo	6- 4-18	8-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
126	Balsto	3,500	Cont.	Cargo	7- 2-18	10-29-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

Russell Shipbuilding Co., Portland, Me.

153	Andra	3,500	Cont.	Cargo	5- 8-18	8-30-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
154	Basaan	3,500	Cont.	Cargo	6-25-18	9-19-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
155	Okesa	3,500	Cont.	Cargo	7-25-18	10-23-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

L. H. Shattuck, Inc., Portsmouth, N. H.

392	Chibiaboe	3,500	Cont.	Cargo	7- 4-18	10-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

Traylor Shipbuilding Corp., Cornwells Heights, Pa.

177	Alvada	3,500	Cont.	Cargo	6- 1-18	8-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
178	Alapaha	3,500	Cont.	Cargo	7- 4-18	9-24-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
179	Buhisan	3,500	Cont.	Cargo	8-17-18	10-29-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
180	Bulana	3,500	Cont.	Cargo	9- 2-18	11-27-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

Middle Atlantic District

Steel

Baltimore Dry Docks & Ship Building Co., Baltimore

81	Elinor	6,200	Req.	Cargo	10- 6-17	3-20-18	11.50	1800 S	353-6	x 339-2½	x 49-1¼	x 26-6	23-1½
82	Luella	6,200	Req.	Refrig.	11-10-17	5-31-18	12.56	1800 S	353-6	x 339-3½	x 49-1¼	x 26-3½	23-1½
84	South Pole	6,200	Req.	Refrig.	6-17-18	11-29-18	11.25	1800 S	353-6	x 340-0	x 49-0	x 28-6	23-0
86	Polar Sea	6,200	Req.	Refrig.	2-11-18	8-30-18	11.73	1800 S	353-6	x 339-3½	x 49-1¼	x 26-3½	23-0
87	Polar Land	6,200	Req.	Refrig.	4- 6-18	10-31-18	11.25	1800 S	353-6	x 340-0	x 49-0	x 28-6	23-0
88	Polar Bear	6,200	Req.	Refrig.	9-23-18	11-30-18	11.25	1800 S	353-6	x 340-0	x 49-0	x 28-6	23-0
192	Naiwa	8,800	Cont.	Cargo	7- 4-18	10-31-18	10.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
193	Fort Wayne	8,800	Cont.	Cargo	9-28-18	12-23-18	10.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2

Bethlehem Shipbuilding Corp., Ltd. (Maryland Plant), Sparrows Point, Md.

169	Cape Romaine	7,400	Req.	Cargo	5- 4-18	6-24-18	13.48	2500 I	391-9¼	x 376-5	x 52-3½	x 27-0	23-10½
170	Cape Lookout	7,400	Req.	Cargo	6-22-18	7-25-18	13.48	2500 I	391-9¼	x 376-5	x 52-3½	x 27-0	23-10½
172	Ampetco	11,350	Req.	Tanker	3-16-18	5- 6-18	10.52	2800 I	481-3	x 464-8⅜	x 60-2⅜	x 29-3	26-5⅜
173	Cape Henry	7,500	Req.	Cargo	3-30-18	5-22-18	10.30	2500 I	391-9¼	x 376-5	x 52-3½	x 27-0	23-10½
174	Cape May	10,100	Req.	Cargo	8-24-18	10-22-18	12.00	4000 I	429-7¼	x 415-9½	x 53-6	x 31-6	29-6½
175	Wheaton	10,100	Req.	Cargo	9-21-18	11-21-18	12.00	4000 I	429-7¼	x 415-9½	x 53-6	x 31-6	29-6½
1243	Berwyn	7,400	Cont.	Cargo	8-17-18	9-27-18	11.00	2500 I	391-9¼	x 377-0	x 52-0	x 29-6	24-0

Newport News Shipbuilding & Drydock Co., Newport News, Va.

205	J. C. Donnell.....	14,800	Req.	Tanker	11-24-17	1-22-18	10.50	3000 I	516-6	x 500-0	x 68-2⅜	x 38-0	27-2⅜
207	Mumaires	7,430	Req.	Cargo	11-17-17	1- 8-18	11.00	2200 I	385-0	x 370-0	x 53-1¼	x 27-0	24-0
208	H. M. Flagler.....	11,375	Req.	Tanker	4-27-18	7-16-18	10.50	2600 I	477-10	x 463-3	x 60-0	x 27-8⅝	26-2
209	F. D. Asche.....	11,375	Req.	Tanker	10-24-18	12- 9-18	10.50	2600 I	477-9	x 463-3	x 60-0	x 37-2	26-2
212	Agwidale	7,200	Req.	Tanker	9- 5-18	11-16-18	11.00	2200 I	385-0	x 370-0	x 53-0	x 30-0	24-0

U.S. Ships Delivered by American Yards

Delaware River District

Steel

Bethlehem Shipbuilding Corp., Ltd. (Harlan Plant), Wilmington, Del.

Hull No.	Name	Dead-weight tonnage	Contract or requisitioned	Type	Date launched	Date delivered	Speed, knots	H. P., shaft or indicated	Length overall, Length between perpendiculars, Beam molded, Depth Molded, feet, inches				Draft, ft. in.
445	J. A. Bostwick	11,720	Req.	Tanker	6- 8-18	8- 5-18	10.50	26-2800 I	481-0	x 465-7	x 60-0	x 36-3	26-6½
446	O. T. Waring	8,130	Req.	Tanker	7-27-18	9-24-18	10.50	2600 I	427-0	x 411-7⅛	x 53-5	x 29-9½	24-7
449	Chas. M. Everest	8,130	Req.	Tanker	8-31-18	12-13-18	10.50	2600 I	427-0	x 412-0	x 53-1	x 31-0	25-5
453	Saetia	4,500	Req.	Cargo	12-19-17	3- 1-18	11.03	1600-I	322-0	x 310-0	x 48-3	x 24-0	20-4¾
454	Guarro	4,500	Req.	Cargo	2-17-18	4- 4-18	11.35	1600-I	322-0	x 310-0	x 48-3	x 24-0	20-4¾
455	Biran	4,500	Req.	Cargo	5- 6-18	6-13-18	10.44	1600-I	322-0	x 310-0	x 48-3	x 24-0	20-4¾
456	Garibaldi	4,500	Req.	Cargo	5-24-18	6-28-18	10.68	1600-I	322-0	x 310-0	x 48-3	x 24-0	20-4¾
457	Tipton	3,500	Req.	Cargo	9-16-18	11-18-18	11.25	1600 I	312-0	x 300-0	x 45-0	x 25-3	19-0

Chester Shipbuilding Co., Chester, Pa.

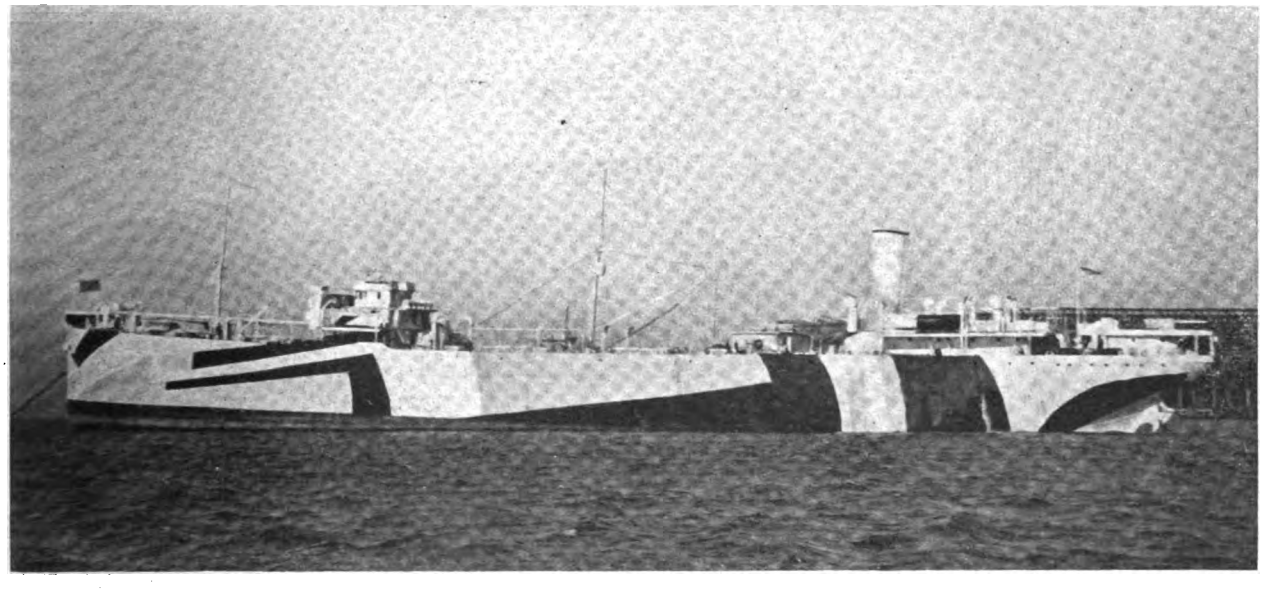
340	Sudbury	7,500	Req.	Cargo	9-29-17	3- 5-18	11.04	2100 S	402-0¾	x 384-11	x 51-2⅜	x 27-8⅜	23-11¼
341	Overbrook	9,000	Req.	Tanker	11-17-17	4-26-18	11.56	2800 S	417-4	x 400-11	x 54-4	x 31-5	25-11⅝
342	Avondale	9,000	Req.	Tanker	3-16-18	5-31-18	10.50	2800 S	417-4	x 400-11	x 54-4	x 31-5	25-11⅝
343	Phoenix	9,000	Req.	Tanker	5-31-18	8-31-18	10.00	2500 S	417-4	x 401-0	x 54-0	x 32-9	26-0

William Cramp & Sons Ship & Engine Building Co., Philadelphia

434	Siboney	4,500	Req.	Trans.	8-15-17	4- 8-18	17.00	9000 S	443-3	x 423-0	x 60-0	x 35-0 S.D	24-5⅜
435	Orizaba	4,500	Req.	Trans.	2-26-18	5-31-18	17.00	9000 S	443-3	x 423-0	x 60-0	x 35-0 S.D	24-5⅜
442	Santa Ana	4,986	Req.	Trans.	10-13-17	1-18-18	13.00	3300 I	373-9	x 360-2⅜	x 51-7⅛	x 22-9½	24-5¼
443	Santa Luisa	4,986	Req.	Cargo and Pass.	3-23-18	5-18-18	13.00	3300 I	373-9	x 360-0	x 51-6	x 33-6½ S.D	24-5¼
444	Santa Olivia	9,500	Req.	Cargo	1-12-18	5-31-18	12.00	3000 I	420-5⅝	x 404-0	x 53-9	x 36-9½ S.D	28-4¼
446	Santa Teresa	5,325	Req.	Pass.	7- 4-18	11-15-18	13–14.00	3000 I	...-.	x 360-0	x 51-9	x 33-5	24-0

New York Shipbuilding Corp., Camden, N. J.

174	Sylvan Arrow	12,650	Req.	Tanker	10-26-17	1- 2-18	11.47	3200 I	485-2¾	x 467-7⅛	x 62-8⅜	x 32-0	27-0¼
175	Broad Arrow	12,650	Req.	Tanker	12-22-17	3-12-18	12.24	3200 I	485-2¾	x 467-7⅛	x 62-8⅜	x 32-0	27-0¼
182	Fairmont	8,600	Req.	Collier	12- 8-17	2-15-18	10.50	2500 I	395-1	x 368-7⅛	x 55-2⅜	x 30-6	26-11¾
183	Freeman	4,900	Req.	Collier	12-27-17	4- 3-18	10.45	1800 I	333-1	x 318-6	x 49-6	x 24-2⅜	22-4½
184	Sewall's Point	8,600	Req.	Collier	2-12-18	3-28-18	12.94	2500 I	395-1	x 368-7⅛	x 55-2⅜	x 30-6	26-11¾
189	Gulfland	7,300	Req.	Tanker	3-28-18	5-29-18	11.55	2700 I	406-6½	x 391-1⅛	x 51-2⅝	x 30-2⅜	24-1½
190	Doheny 3rd	12,300	Req.	Tanker	8-17-18	11-19-18	11.00	3200 I	485-2¾	x 468-0	x 62-6	x 39-6 S.D	27-0¼
191	Glen White	8,600	Req.	Collier	4-20-18	5-31-18	10.50	2500 I	395-1	x 368-7⅛	x 55-2⅜	x 30-6	26-11¾
192	Winding Gulf	8,600	Req.	Collier	6-22-18	8-15-18	10.50	2500 I	395-1	x 377-4	x 55-0	x 34-5 U.D	26-11¾
193	M. J. Scanlon	8,100	Req.	Cargo	7- 4-18	9-20-18	11.00	2150 I	377-6⅜	x 362-4	x 51-2⅜	x 32-2⅜	28-1⅛
195	Wm. N. Page	8,600	Req.	Collier	9- 7-18	11-30-18	11.00	2500 I	395-1	x 377-4	x 55-0	x 34-5 M.B	26-11¾
204	Absecon	4,900	Req.	Collier	3-23-18	6-28-18	12.00	1800 I	333-1	x 318-6	x 49-6	x 24-2⅜	22-4½
205	Tuckahoe	4,900	Req.	Collier	5- 5-18	5-15-18	10.41	1800 I	333-1	x 318-6	x 49-6	x 24-2⅜	22-4½
206	Santa Tecla	3,800	Req.	Cargo	2-28-18	7-19-18	11.56	1450 I	310-9⅞	x 298-7⅛	x 40-0	x 22-11	21-5
207	Mineola	3,800	Req.	Cargo	3-21-18	6-28-18	11.32	1450 I	310-9⅞	x 298-7⅛	x 40-0	x 22-11	21-5



TANKER E. L. DOHENY THIRD, BUILT BY THE NEW YORK SHIPBUILDING CO.—VESSELS OF THIS TYPE KEPT THE BATTLE FLEETS IN COMMISSION AND ARE NOW NEEDED FOR PEACE TRADE

U. S. Ships Delivered by American Yards

Pusey & Jones Co., Wilmington, Del.
Pennsylvania Plant, Gloucester, N. J.

Hull No.	Name	Dead-weight tonnage	Contract or requisitioned	Type	Date launched	Date delivered	Speed, knots	H. P., shaft or indicated	Length overall, Length between perpendiculars, Beam molded, Depth Molded, feet, inches				Draft, ft. in.
1	Chestnut Hill	7,000	Req.	Tanker	8-23-17	3-14-18	9.25	2400 S	380-0	x 364-11	x 51-0	x 29-6	24-5
2	John M. Connelly	7,000	Req.	Tanker	11-10-17	5- 7-18	11.00	2400 S	380-0	x 364-11	x 51-0	x 29-6	24-5
3	Allentown	7,000	Req.	Tanker	6- 9-18	9-12-18	11.00	2400 S	380-0	x 365-0	x 50-9	x 31-3	24-3
4	Brandywine	7,000	Req.	Tanker	9- 2-18	11-30-18	11.00	2400 S	380-0	x 365-11	x 50-9	x 31-3	24-3
7	Indianapolis	12,500	Req.	Cargo	7- 4-18	11-30-18	11.00	3000 S	455-0	x 439-6	x 60-0	x 36-8	28-2

Wilmington Plant, Wilmington, Del.

1001	Piqua	4,000	Req.	Cargo	12-15-17	5- 8-18	10.00	1400 S	312-0	x 300-0	x 44-0	x 22-3	18-11¾
1002	Wuakesha	4,000	Req.	Cargo	4-27-18	5-31-18	11.17	1400 S	312-0	x 300-0	x 44-0	x 22-3	18-11¼
1003	Middleburg	4,000	Req.	Cargo	6-22-18	7-31-18	11.61	1400 S	312-0	x 300-0	x 44-0	x 22-3	18-11¼
1004	Lynchburg	4,000	Req.	Cargo	8-31-18	11-22-18	10.00	1400 S	312-0	x 300-0	x 44-0	x 22-3	18-11¼
1005	Aurora	4,000	Req.	Cargo	7- 4-18	9- 7-18	10.00	1400 S	312-0	x 300-0	x 44-0	x 22-3	18-11¼

Sun Shipbuilding Co., Chester, Pa.

2	Sabine Sun	10,300	Req.	Tanker	2- 2-18	3-28-18	10.50	2500 I	445-1	x 429-4	x 59-2⅜	x 31-5	25-7⅜
3	Radnor	10,000	Req.	Cargo	3-23-18	5-13-18	11.28	3200 I	450-0	x 434-4	x 57-8⅜	x 38-0	28-1½
4	Lancaster	10,000	Req.	Cargo	5- 5-18	6-19-18	10.50	3200 I	450-0	x 434-4	x 57-8⅜	x 38-0	28-1½
7	Neponset	10,000	Req.	Cargo	7- 4-18	10- 7-18	10.50	2500 I	450-0	x 435-0	x 57-6	x 38-0 S.D	26-0
8	Deerfield	10,000	Req.	Cargo	8- 4-18	10-19-18	.....	2500 I	450-0	x 435-0	x 57-6	x 38-0 S.D	26-0

Agency Plants

Steel

American International Shipbuilding Corp., Hog Island, Pa.

492	Quistconck	7,500	Cont.	Cargo	8- 5-18	12- 3-18	11.50	2500 S	401-0	x 390-0	x 54-0	x 32-0	24-0

Southern Atlantic District

Wood

Alabama Dry Dock & Shipbuilding Co., Mobile, Ala.

332	Banago	3,500	Cont.	Cargo	7- 4-18	9-25-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

American Shipbuilding Co., Brunswick, Ga.

187	Alabat	3,500	Cont.	Cargo	6-29-18	10-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

Dierks-Blodgett Shipbuilding Co., Pascagoula, Miss.

279	Pascagoula	3,500	Cont.	Cargo	5-15-18	9-30-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
280	Belair	3,500	Cont.	Cargo	7- 4-18	10-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

John H. Fahey, Jacksonville, Fla.

139	Baxley	3,500	Cont.	Cargo	7-22-18	9-30-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

Hodge Ship Co., Moss Point, Miss.

349	Alpaco	3,500	Cont.	Cargo	7- 4-18	10-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

Jahncke Shipbuilding Co., Inc., Madisonville, La.

210	Bayou Teche	3,500	Cont.	Cargo	7- 4-18	10-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

Morey & Thomas, Jacksonville, Fla.

378	Bagoso	3,500	Cont.	Cargo	9-10-18	11-12-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
379	Bedminster	3,500	Cont.	Cargo	7- 4-18	9-26-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

J. M. Murdock, Jacksonville, Fla.

356	Dancey	3,500	Cont.	Cargo	6-24-18	8-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
357	Harish	3,500	Cont.	Cargo	9- 2-18	10-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

Tampa Dock Co., Tampa, Fla

200	Nameckl	3,500	Cont.	Cargo	5- 8-18	8-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½
201	Agria	3,500	Cont.	Cargo	7- 4-18	9-30-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

U. S. Ships Delivered by American Yards

Composite

Merrill-Stevens Shipbuilding Corp., South Jacksonville, Fla.

Hull No.	Name	Dead-weight tonnage	Contract or requisitioned	Type	Date launched	Date delivered	Speed, knots	H. P., shaft or indicated	Length overall, Length between perpendiculars, Beam molded, Depth Molded, feet, inches			Draft, ft. in.
1	Red Cloud	3,500	Cont.	Cargo	5-30-18	8-28-18	10.00	1400 I	284-6	x 270-0	x 45-0	x 24-3	20-10
2	Apalachee	3,500	Cont.	Cargo	7- 4-18	8-31-18	10.00	1400 I	284-6	x 270-0	x 45-0	x 24-3	20-10
4	Botsford	3,500	Cont.	Cargo	8- 3-18	9-30-18	10.00	1400 I	284-6	x 270-0	x 45-0	x 24-3	20-10

Mobile Shipbuilding Co., Mobile, Ala.

310	Balino	3,500	Cont.	Cargo	8-28-18	10-31-18	10.00	1350 I	284-6	x 270-0	x 45-0	x 24-3	20-10
312	Morganza	3,500	Cont.	Cargo	9-29-18	12- 4-18	10.00	1350 I	284-6	x 270-0	x 45-0	x 24-3	20-10

Gulf District

Wood

Beaumont Shipbuilding & Drydock Co., Beaumont, Tex.

447	Oneco	3,500	Cont.	Cargo	5-11-18	10-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

Lone Star Shipbuilding Co., Beaumont, Tex.

267	Lone Star	3,500	Cont.	Cargo	6- 1-18	10-12-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	23-10½

National Shipbuilding Co., Orange, Tex.

234	Bonham	4,700	Cont.	Cargo	5-26-18	10-28-18	9.50	1450 I	315-0	x 300-0	x 48-0	x 28-6	24-0
235	Boreta	4,700	Cont.	Cargo	6-26-18	12-11-18	9.50	1450 I	315-0	x 300-0	x 48-0	x 28-6	24-0

Southern Pacific District

Steel

Bethlehem Shipbuilding Corp., Ltd. (Union Plant), Alameda, Cal.

135	A. C. Bedford	14,900	Req.	Tanker	10-27-17	2-14-18	9.50	3200 I	518-6	x 500-0	x 68-0	x 28-0	27-3½
143	J. E. O'Neil	10,475	Req.	Tanker	8-30-17	1-10-18	10.76	2600 S	453-2	x 435-0	x 56-0	x 32-0	25-11⅝
144	Herbert L. Pratt	10,475	Req.	Tanker	11- 8-17	3- 1-18	9.90	2600 S	453-2	x 435-0	x 56-0	x 32-0	25-11⅝
145	S. M. Spaulding	10,475	Req.	Tanker	12-17-17	3-11-18	10.39	2600 S	453-2	x 435-0	x 56-0	x 32-0	25-9⅝
146	Paul H. Harwood	10,475	Req.	Tanker	2-10-18	5- 1-18	10.35	2600 S	453-2	x 435-0	x 56-0	x 32-0	25-9⅝
147	W. S. Rheem	10,475	Req.	Tanker	4-30-18	8-17-18	10.94	2700 I	453-2	x 435-0	x 56-0	x 32-0	26-6½
148	W. M. Irish	10,475	Req.	Tanker	12-30-17	4-30-18	9.77	2600 S	453-2	x 435-0	x 56-0	x 32-0	25-11⅛
149	W. M. Burton	10,475	Req.	Tanker	2-20-18	6-25-18	8.58	2600 S	453-2	x 435-0	x 56-0	x 32-0	25-11
154	Redondo	6,000	Req.	Cargo	11-10-17	2- 6-18	10.50	1800 I	354-3	x 341-0	x 48-2⅜	x 24-6	22-6⅞
162	Independence	11,800	Req.	Cargo	7- 4-18	10-31-18	11.00	3000 S	457-6	x 440-1½	x 56-0	x 38-0	28-6
163	Victorious	11,800	Req.	Cargo	7- 4-18	10-19-18	11.00	3000 S	457-6	x 440-1½	x 56-0	x 38-0	28-6
164	Defiance	11,800	Req.	Cargo	7- 4-18	9- 5-18	10.41	3000 S	457-6	x 440-0	x 56-0	x 35-2⅜	28-7½
165	Invincible	11,800	Req.	Cargo	8- 4-18	10-17-18	11.00	3000 S	457-6	x 440-0	x 56-0	x 38-0	28-6
166	Courageous	11,800	Req.	Cargo	9-22-18	11-27-18	11.00	3000 S	457-6	x 440-0	x 56-0	x 38-0	28-6
1220	Volunteer	11,800	Cont.	Cargo	5-18-18	8-23-18	10.50	3000 S	428-6	x 410-0	x 56-0	x 32-0	30-6
1221	Liberator	11,700	Cont.	Cargo	3-24-18	7- 2-18	10.50	2800 S	428-6	x 410-0	x 56-0	x 32-0	30-6
1222	Challenger	11,800	Cont.	Cargo	7- 4-18	10- 4-18	10.50	3000 S	428-6	x 410-0	x 56-0	x 32-0	30-6

Hanlon Shipbuilding & Drydock Co., Oakland, Cal.

78	Gov. John Lind	5,500	Req.	Cargo	5-18-18	9-10-18	10.99	2000 I	319-9	x 305-0	x 46-0	x 24-6	22-5
79	Major Wheeler	5,500	Req.	Cargo	7- 4-18	9-30-18	10.50	1800 I	318-6	x 305-0	x 46-0	x 26-9	22-5

Long Beach Shipbuilding Co., Long Beach, Cal.

124	Silverado	3,000	Req.	Cargo	2-11-18	5-16-18	9.00	874 I	259-6	x 244-0	x 42-0	x 26-0	20-3
125	Elderado	3,000	Req.	Cargo	5- 7-18	7-19-18	11.05	842 I	265-0	x 244-0	x 42-0	x 26-0	20-3
423	Ozaukee	6,000	Cont.	Cargo	6- 5-18	9-30-18	11.50	2500 S	354-6	x 341-0	x 48-0	x 27-3	22-4
424	Oshkosh	6,000	Cont.	Cargo	8-31-18	11-30-18	11.50	2500 S	354-6	x 341-0	x 48-0	x 27-3	22-4

Los Angeles Shipbuilding & Drydock Co., Los Angeles

27	Accomac	8,800	Cont.	Cargo	12-15-17	6-14-18	10.50	2800 S	423-9	x 410-5½	x 54-0	x 29-9	24-0
28	Wakulla	8,800	Cont.	Cargo	1-14-18	6-25-18	10.50	2800 S	423-9	x 410-5½	x 54-0	x 29-9	24-0
29	Waumpam	8,800	Cont.	Cargo	3-10-18	7-16-18	10.50	2800 S	423-9	x 410-5½	x 54-0	x 29-9	24-0
30	Wassaic	8,800	Cont.	Cargo	4-14-18	7-25-18	10.50	2800 S	423-9	x 410-5½	x 54-0	x 29-9	24-0
31	West Galoc	8,800	Cont.	Cargo	5-25-18	8-21-18	10.50	2800 S	423-9	x 410-5½	x 54-0	x 29-9	24-0
32	West Galeta	8,800	Cont.	Cargo	7- 4-18	8-31-18	10.50	2800 S	423-9	x 410-5½	x 54-0	x 29-9	24-0
33	West Zula	8,800	Cont.	Cargo	7- 4-18	9-26-18	10.50	2800 S	423-9	x 410-5½	x 54-0	x 29-9	24-0
34	West Zucker	8,800	Cont.	Cargo	8-31-18	11-20-18	10.50	2800 S	423-9	x 410-5½	x 54-0	x 29-9	24-0

U. S. Ships Delivered by American Yards

Moore Shipbuilding Co., Oakland, Cal.

Hull No.	Name	Dead-weight tonnage	Contract or requisitioned	Type	Date launched	Date delivered	Speed, knots	H. P., shaft or indicated	Length overall, Length between perpendiculars, Beam molded, Depth Molded, feet, inches			Draft, ft. in.
113	Coronado	9,400	Req.	Cargo	8-25-17	1-16-18	10.26	2400 S	416-6	x 402-7⅛	x 53-0	x 32-0	26-4¾
114	Yosemite	9,400	Req.	Cargo	10-31-17	2- 4-18	9.45	2400 S	416-6	x 402-7⅛	x 53-0	x 32-0	26-4¾
115	Yellowstone	9,400	Req.	Cargo	12- 9-17	4-22-18	8.63	2400 S	416-6	x 402-6	x 53-0	x 26-6	26-4¾
116	Pasadena	9,400	Req.	Cargo	1-27-18	5-11-18	11.50	2800 S	416-6	x 402-7⅛	x 53-0	x 32-0	26-6
117	Oakland	9,400	Req.	Cargo	3-14-18	5-30-18	11.00	2800 S	416-0	x 402-7⅛	x 53-0	x 32-0	26-4¾
118	Fresno	9,400	Req.	Cargo	5-18-18	6-22-18	11.00	2800 S	416-6	x 402-7⅛	x 53-0	x 32-0	26-4¾
143	Alloway	9,400	Cont.	Cargo	3-14-18	7-11-18	11.00	2800 S	416-6	x 402-6	x 53-0	x 34-6	26-5¼
144	Aniwa	9,400	Cont.	Cargo	3-14-18	7-26-18	11.00	2800 S	416-6	x 402-6	x 53-0	x 34-6	26-5¼
150	Zirkel	9,400	Cont.	Cargo	8- 8-18	9-27-18	11.00	2800 S	416-6	x 402-6	x 53-0	x 34-6	26-5¼

Western Pipe & Steel Co. of California, South San Francisco, Cal.

334	Isanti	8,800	Cont.	Cargo	6- 2-18	9-30-18	10.75	2500 S	427 0	x 410-5½	x 54-0	x 29-9	24-2
335	Nantahala	8,800	Cont.	Cargo	7- 4-18	10-31-18	10.75	2500 S	427 0	x 410-5½	x 54-0	x 29-9	24-2

Wood

Ralph J. Chandler, Wilmington, Cal.

484	Bellota	3,500	Cont.	Cargo	5-25-18	8-13-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
485	Blythedale	3,500	Cont.	Cargo	9- 4-18	11-18-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

Coos Bay Shipbuilding Co., Marshfield, Oreg.

451	Coos Bay	3,500	Cont.	Cargo	4-28-18	8-27-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
452	Balliett	3,500	Cont.	Cargo	5-29-18	9-30-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
453	Marshfield	3,500	Cont.	Cargo	7-12-18	12-19-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6

Fulton Shipbuilding Co., Wilmington, Cal.

432	Yehama	3,500	Cont.	Cargo	4-10-18	8-26-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
434	Catawba	3,500	Cont.	Cargo	5-11-18	10- 3-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6

Hammond Lumber Co., Humboldt Bay, Cal.

330	Keota	3,500	Cont.	Cargo	5- 2-18	9-12-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
331	Bloomington	3,500	Cont.	Cargo	7- 4-18	11- 5-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

Kruse & Banks Shipbuilding Co., North Bend, Oreg.

426	North Bend	3,500	Cont.	Cargo	12-15-17	5-27-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
427	Quidnic	3,500	Cont.	Cargo	3-26-18	7- 1-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
428	Kickapoo	3,500	Cont.	Cargo	4-15-18	7-29-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
429	Balladan	3,500	Cont.	Cargo	5-26-18	9- 1-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
430	Coconino	3,500	Cont.	Cargo	6-22-18	9-25-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6

Northern Pacific District

Steel

Albina Engine & Machine Works, Inc., Portland, Oreg.

1	Point Loma	3,300	Req.	Cargo	11- 3-17	3- 7-18	12.00	1300 I	261-0	x 251-0	x 43-6	x 18-2	17-4⅞
2	Point Arena	3,300	Req.	Cargo	11-29-17	3-30-18	9.50	1300 I	261-0	x 251-0	x 43-6	x 18-1½	17-4⅞
3	Point Bonita	3,800	Req.	Cargo	3-27-18	6-24-18	11.80	1400 I	300-0	x 289-0	x 44-2	x 21-6	19-0⅝
4	Point Lobas	3,800	Req.	Cargo	4-11-18	6-29-18	12.00	1400 I	300-0	x 289-0	x 44-2	x 21-6	19-0⅝
5	Point Judith	3,800	Req.	Cargo	5- 4-18	7-25-18	10.00	1400 I	300-0	x 289-0	x 44-2	x 21-6	19-0⅝
6	Point Adams	3,800	Req.	Cargo	5-11-18	8-12-18	12.00	1400 I	300-0	x 289-0	x 44-2	x 21-6	19-0⅝
1216	Cadaretta	3,700	Cont.	Cargo	9- 2-18	10-31-18	12.00	1400 I	300-0	x 289-0	x 44-0	x 21-6	19-1⅛
1217	Caddopeak	3,700	Cont.	Cargo	10-18-18	12- 4-18	12.00	1400 I	300-0	x 289-0	x 44-0	x 21-6	19-1⅛

Ames Shipbuilding & Drydock Co., Portland, Oreg.

1	Westerly	8,800	Req.	Cargo	11-24-17	2-16-18	11.83	2500 S	423-9	x 409-5	x 54-2⅜	x 27-5⅜	23-11¼
2	Westwood	8,800	Req.	Cargo	1-12-18	3-12-18	12.11	2500 S	423-9	x 409-5	x 54-2⅜	x 27-5⅜	23-11¼
3	West Eagle	8,800	Req.	Cargo	1-31-18	3-29-18	12.19	2500 S	423-9	x 410-5½	x 54-0	x 29-9	23-11¼
4	Montrolite	9,000	Req.	Tanker	6- 8-18	8-12-18	10.87	2500 S	435-6	x 419-8	x 57-3	x 30-0	24-11½
5	L. J. Drake	9,000	Req.	Tanker	7-27-18	9-30-18	10.50	2500 S	435-6	x 420-0	x 57-0	x 31-6	24-0
6	Westmount	8,800	Req.	Cargo	4-16-18	5-20-18	13.40	3300 I	424-0	x 409-6	x 54-2⅜	x 29-9	23-11¼
7	Westford	8,800	Req.	Cargo	5-31-18	6-29-18	10.50	2750 S	423-9	x 409-5	x 54-2	x 29-9	23-11¼
8	Westport	8,800	Req.	Cargo	8-12-18	9-10-18	12.68	2500 I	424-0	x 409-6	x 54-2⅜	x 27-5⅜	23-11¼
9	Westmead	8,800	Req.	Cargo	8-27-18	10-29-18	10.50	3000 I	423-9	x 410-5½	x 54-0	x 29-9	24-2
10	West Cape	8,800	Req.	Cargo	9-18-18	11-20-18	10.50	3000 I	423-9	x 410-5½	x 54-0	x 29-9	24-2

Columbia River Shipbuilding Corp., Portland, Oreg.

1	Westward Ho	8,800	Req.	Cargo	11-19-17	3- 4-18	10.50	2500 S	423-9	x 410-0	x 54-2⅜	x 27-7⅛	24-0½
2	Westbrook	8,800	Req.	Cargo	1-13-18	3-30-18	10.51	2500 S	423-9	x 410-0	x 54-2⅜	x 27-7⅛	24-0½
3	West Gate	8,800	Req.	Cargo	1-27-18	4 -3-18	10.60	2500 S	423-9	x 410-0	x 54-2⅜	x 27-7⅛	24-0½
5	West Grove	8,800	Req.	Cargo	3-27-18	4-27-18	11.40	2500 S	423-9	x 410-0	x 54-2⅜	x 27-7⅛	24-0½
1644	West Indian	8,800	Cont.	Cargo	2-27-18	5-23-18	10.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
1645	Western City	8,800	Cont.	Cargo	4-30-18	6- 6-18	10.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
1646	West Coast	8,800	Cont.	Cargo	7- 6-18	7-31-18	11.00	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
1647	Western Plains	8,800	Cont.	Cargo	8-10-18	10-10-18	11.00	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
1648	Western Pride	8,800	Cont.	Cargo	7-20-18	8-26-18	11.00	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
1649	Western Belle	8,800	Cont.	Cargo	9-28-18	11-21-18	11.00	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2

U. S. Ships Delivered by American Yards

J. F. Duthie & Co., Seattle

Hull No.	Name	Dead-weight tonnage	Contract or requisitioned	Type	Date launched	Date delivered	Speed, knots	H. P., shaft or indicated	Length overall, Length between perpendiculars, Beam molded, Depth Molded, feet, inches				Draft, ft. in.
8	West Point	8,800	Req.	Cargo	10-15-17	1-21-18	12.40	2500 S	423-9	x 409-5	x 54-2⅜	x 27-7⅛	24-1
9	Westerner	8,800	Req.	Cargo	11- 6-17	2- 4-18	11.80	2500 S	423-9	x 409-7⅛	x 54-2⅜	x 29-9	24-1
10	Westfield	8,800	Req.	Cargo	12- 8-17	2-22-18	11.87	2500 S	423-9	x 409-6	x 54-2⅜	x 29-9	24-1
11	Westbridge	8,800	Req.	Cargo	4-24-18	5-24-18	12.03	2500 S	423-9	x 409-6	x 54-2⅜	x 27-7¼	24-1
12	Western Sea	8,800	Req.	Cargo	5-25-18	6-20-18	12.60	2500 S	423-9	x 409-6	x 54-2⅜	x 27-7¼	24-1
14	Westover	8,800	Req.	Cargo	2-17-18	4-12-18	12.09	2500 S	423-9	x 409-6	x 54-2⅜	x 29-9	24-1
15	Westboro	8,800	Req.	Cargo	3-26-18	4-27-18	12.68	2500 S	423-9	x 409-6	x 54-2⅜	x 27-7¼	24-1
16	Western Star	8,800	Req.	Cargo	7- 4-18	8-28-18	12.75	3000 S	423-9	x 409-6	x 54-2⅜	x 27-7¼	24-0½
17	Western King	8,800	Req.	Cargo	1- 3-18	3-26-18	12.00	2500 S	423-9	x 409-6	x 54-2⅜	x 29-9	24-1
18	Western Crops	8,800	Req.	Cargo	7- 4-18	8-31-18	12.80	2750 S	423-9	x 409-6	x 54-2⅜	x 27-7¼	24-0½
19	Western Hope	8,800	Req.	Cargo	7-29-18	9-25-18	10.50	2500 S	423-9	x 409-6	x 54-2⅜	x 27-7¼	23-11½
20	Westpool	8,800	Req.	Cargo	9-21-18	10-31-18	12.50	3000 S	423-9	x 410-5½	x 54-0	x 29-9	24-2

Northwest Steel Co., Portland, Oreg.

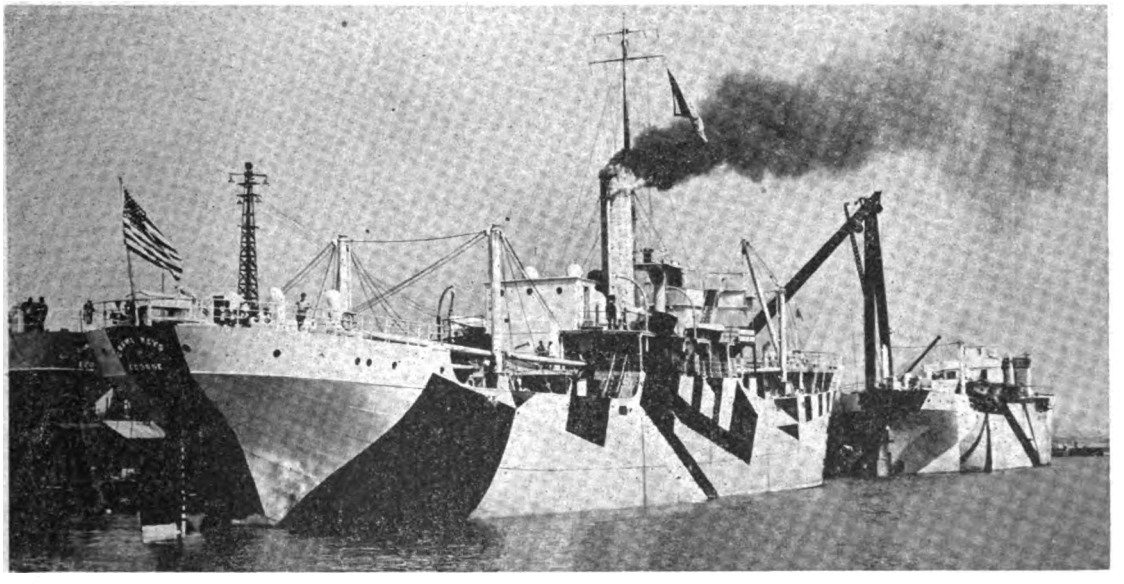
3	West Wind	8,800	Req.	Cargo	11- 4-17	2- 4-18	7.08	2500 S	423-9	x 410-0	x 54-2⅜	x 27-6	24-0½
4	West Shore	8,800	Req.	Cargo	1-12-18	4-15-18	10.50	2500 S	423-9	x 409-8	x 54-2⅜	x 27-8⅜	24-0½
6	West Chester	8,800	Req.	Cargo	12- 5-17	3-17-18	11.93	2500 S	423-9	x 409-9½	x 54-2⅜	x 27-8⅜	24-0½
7	Westhampton	8,800	Req.	Cargo	2- 8-18	5-13-18	12.00	2500 S	423-9	x 410-0	x 54-2⅜	x 30-2½	24-0½
8	Western Wave	8,800	Req.	Cargo	3- 6-18	6- 8-18	10.50	2500 S	423-9	x 409-9½	x 54-2⅜	x 27-8⅜	24-0½
9	Western Ocean	8,800	Req.	Cargo	3-19-18	6-17-18	11.50	2500 S	423-9	x 409-9½	x 54-2⅜	x 27-8⅜	24-0½
10	Western Chief	8,800	Req.	Cargo	4-20-18	7- 1-18	12.00	2500 S	423-9	x 409-9½	x 54-2⅜	x 27-8⅜	24-0½
11	Western Spirit	8,800	Req.	Cargo	5- 6-18	7-17-18	12.00	2500 S	423-9	x 409-9½	x 54-2⅜	x 27-8⅜	24-0½
12	Western Light	8,800	Req.	Cargo	5-27-18	7-30-18	12.00	2500 S	423-9	x 409-9½	x 54-2⅜	x 27-8⅜	24-0½
13	Western Maid	8,800	Req.	Cargo	7- 8-18	8-15-18	12.00	2650 S	423-9	x 409-10	x 54-2⅜	x 27-8⅜	24-0½
14	Western Comet	8,800	Req.	Cargo	7-23-18	9-21-18	10.00	3000 S	423-9	x 410-5½	x 54-0	x 29-9	24-0½
15	Western Scout	8,800	Req.	Cargo	8-12-18	10-15-18	10.00	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-0½
16	Westview	8,800	Req.	Cargo	8-26-18	11-19-18	10.00	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-0½
1073	West Kyska	8,800	Cont.	Cargo	10- 7-18	11-22-18	10.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
1074	West Zeda	8,800	Cont.	Cargo	10-26-18	12-23-18	10.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2

Seattle Construction & Drydock Co., Seattle
Seattle Plant, Seattle

91	Walter A. Luckenbach.	10,500	Req.	Cargo	12-19-17	6- 9-18	14.38	5000 S	469-0	x 446-6	x 56-1	x 40-8	30-6 5/16
92	Sacramento	7,500	Req.	Cargo	11-21-17	1-28-18	10.89	2100 I	396-0	x 380-0	x 53-2⅜	x 27-0½	23-4
93	Sutherland	7,500	Req.	Cargo	1-19-18	3-16-18	11.44	2100 I	396-0	x 380-0	x 53-2⅜	x 27-0½	23-9
94	Bremerton	7,500	Req.	Cargo	3-27-18	4-23-18	9.93	2100 I	396-0	x 380-0	x 53-2⅜	x 27-0½	23-9

Tacoma Plant, Tacoma, Wash.

95	Vittorio Emanuel III..	7,500	Req.	Cargo	5-24-18	6-27-18	10.50	2100 I	396-0	x 380-0	x 53-2⅜	x 27-0½	23-9
96	Masuda	7,500	Req.	Cargo	5-23-18	7-31-18	10.50	2100 I	396-0	x 380-7¼	x 53-1⅛	x 27-0	23-8
97	Chebaulip	7,500	Req.	Cargo	3-28-18	6-30-18	10.31	2500 I	396-0	x 380-7¼	x 53-1⅛	x 27-0	23-7
98	Bellingham	7,500	Req.	Cargo	9-28-18	10-30-18	10.50	2500 I	396-0	x 380-0	x 53-0	x 29-3	23-6
99	Yukon	7,500	Req.	Cargo	10-26-18	11-30-18	10.50	2500 I	396-0	x 380-0	x 53-0	x 29-3	23-6
101	Anacortes	7,500	Req.	Cargo	7- 4-18	9- 7-18	10.50	2500 I	396-0	x 380-0	x 53-0	x 29-3	23-6
102	Puget Sound	7,500	Req.	Cargo	7-19-18	9-29-18	10.50	2500 I	396-0	x 379-1⅛	x 53-1⅛	x 27-0	23-8
107	Willimantic	7,500	Cont.	Cargo	5-29-18	10-31-18	10.50	2400 I	396-0	x 380-0	x 53-0	x 29-3	23-6
108	Deranof	7,500	Cont.	Cargo	6-20-18	12-24-18	10.50	2400 I	396-0	x 380-0	x 53-0	x 29-3	23-6



CRAWL KEYS, FAMOUS RECORD SHIP DELIVERED IN 29 DAYS—THIS GREAT LAKES PRODUCT, BUILT BY THE GREAT LAKES ENGINEERING WORKS, IS TYPICAL OF THE HUGE FLEET FRESH WATER YARDS PROVIDED FOR OCEAN TRADE

U. S. Ships Delivered by American Yards

Skinner & Eddy Corp., Seattle

Hull No.	Name	Dead-weight tonnage	Contract or requisitioned	Type	Date launched	Date delivered	Speed, knots	H. P., shaft or indicated	Length overall, Length between perpendiculars, Beam molded, Depth Molded, feet, inches				Draft, ft. in.
11	Trontolite	9,000	Req.	Tanker	12-15-17	2- 1-18	11.50	2500 S	435-6	x 420-0	x 57-0	x 31-6	25-0¼
12	West Arrow	8,800	Req.	Cargo	1-19-18	2-26-18	13.42	2500 S	423-9	x 409-7⅛	x 54-1⅛	x 27-1⅛	24-1⅛
16	West Lake	8,800	Req.	Cargo	2- 9-18	3- 9-18	10.28	2500 S	423-9	x 409-7⅛	x 54-1⅛	x 27-1⅛	24-1⅛
17	Western Queen	8,800	Req.	Cargo	3-28-18	4-25-18	13.10	2500 S	423-9	x 409-7⅛	x 54-2⅜	x 27-1⅛	24-1⅛
83	Seattle	8,800	Cont.	Cargo	11-24-17	1- 5-18	10.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
84	Absaroka	8,800	Cont.	Cargo	12-22-17	2-12-18	10.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
85	Canoga	8,800	Cont.	Cargo	2-26-18	3-23-18	10.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
86	Ossineke	8,800	Cont.	Cargo	3-14-18	4-13-18	10.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
87	West Alsek	8,800	Cont.	Cargo	5-11-18	6- 4-18	10.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
88	West Apaum	8,800	Cont.	Cargo	5-23-18	6-19-18	10.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2
1175	West Durfee	8,800	Cont.	Cargo	4-11-18	5-16-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1176	West Lianga	8,800	Cont.	Cargo	4-20-18	5- 4-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1177	West Cohas	8,800	Cont.	Cargo	6- 6-18	6-29-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1178	West Ekonk	8,800	Cont.	Cargo	6-22-18	7-13-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1179	West Gambo	8,800	Cont.	Cargo	7- 4-18	7-20-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1180	West Gotomska	8,800	Cont.	Cargo	7-17-18	8- 7-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1181	West Hobomac	8,800	Cont.	Cargo	7-27-18	8-17-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1182	West Hosoki	8,800	Cont.	Cargo	8-15-18	8-29-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1183	West Humhaw	8,800	Cont.	Cargo	8-28-18	9-14-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1184	West Lashaway	8,800	Cont.	Cargo	9-12-18	9-30-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1185	West Laquassuck	8,800	Cont.	Cargo	9-21-18	10-15-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1186	West Madaket	8,800	Cont.	Cargo	10- 5-18	10-30-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1187	West Mahomet	8,800	Cont.	Cargo	10-19-18	11-13-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-6
1731	Edenton	9,600	Cont.	Cargo	11- 9-18	12- 5-18	11.50	2800 I	423-9	x 410-5½	x 54-0	x 29-9	26-6
1732	Edgecombe	9,600	Cont.	Cargo	11-23-18	12-24-18	11.50	2800 I	423-9	x 410-5½	x 54-0	x 29-9	26-6
1925	West Cressey	8,800	Cont.	Cargo	11-14-18	12-17-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2½
1927	West Elcasco	8,800	Cont.	Cargo	9-21-18	10-23-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2½
1928	West Eldara	8,800	Cont.	Cargo	10-14-18	11-23-18	11.50	2500 S	423-9	x 410-5½	x 54-0	x 29-9	24-2½

Wood

Barbare Bros., Tacoma, Wash.

483	Mahaska	3,500	Cont.	Cargo	3-30-18	8-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

Grant Smith-Porter Ship Co., Aberdeen, Wash.

285	Manada	3,500	Cont.	Cargo	3-17-18	8-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
286	Bancraft	3,500	Cont.	Cargo	4-28-18	9-30-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
287	Boxley	3,500	Cont.	Cargo	5-12-18	9-19-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
288	Moraine	3,500	Cont.	Cargo	6- 8-18	12- 3-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
289	Wihaha	3,500	Cont.	Cargo	6-27-18	11- 1-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
290	Itanca	3,500	Cont.	Cargo	7- 4-18	12-13-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

Grays Harbor Motorship Corp., Grays Harbor, Wash.

55	Abrigada	4,000	Cont.	Cargo	12- 1-17	8-31-18	10.50	1400 I	290-0	x 270-0	x 47-10	x 28-1½	24-0
56	Wishkah	4,000	Cont.	Cargo	3-15-18	7- 3-18	10.50	1400 I	290-0	x 270-0	x 47-10	x 28-1½	24-0
57	Kaskaskia	4,000	Cont.	Cargo	5- 4-18	7-26-18	10.50	1400 I	290-0	x 270-0	x 47-10	x 28-1½	24-0
58	Blackford	4,000	Cont.	Cargo	5-15-18	8-23-18	10.50	1400 I	290-0	x 270-0	x 47-10	x 28-1½	24-0
998	Bromela	4,000	Cont.	Cargo	5-29-18	9-21-18	10.50	1400 I	290-0	x 270-0	x 47-10	x 28-1½	24-0
1000	Broncho	4,000	Cont.	Cargo	7- 4-18	12- 7-18	10.50	1400 I	290-0	x 270-0	x 47-10	x 28-1½	24-0
1896	Aberdeen	4,000	Cont.	Cargo	9-23-18	10- 6-18	10.50	1400 I	290-0	x 270-0	x 47-10	x 28-1½	24-0

Meacham & Babcock Shipbuilding Co., Seattle

442	Boulton	3,500	Cont.	Cargo	5-18-18	9-12-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
443	Daca	3,500	Cont.	Cargo	7- 4-18	10-19-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

Nilson & Kelez Shipbuilding Corp., Seattle

465	Bonnafon	3,500	Cont.	Cargo	6- 8-18	9- 9-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
466	Forster	3,500	Cont.	Cargo	7- 4-18	10-18-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

Pacific American Fisheries, Bellingham, Wash.

1201	Cruso	3,500	Cont.	Cargo	7- 4-18	12- 9-18	10.00	1500 I	282-0	x 268-4	x 45-2	x 26-0	25-0

Seaborn Shipyards, Tacoma, Wash.

473	Quinault	3,500	Cont.	Cargo	2- 9-18	7- 7-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
474	Wahklakum	3,500	Cont.	Cargo	3-12-18	8- 6-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
475	Mojave	3,500	Cont.	Cargo	4-21-18	8-24-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
476	Cheron	3,500	Cont.	Cargo	5- 8-18	9-13-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
477	Mazama	3,500	Cont.	Cargo	6-11-18	9-24-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
478	Chimo	3,500	Cont.	Cargo	7- 4-18	10-18-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
479	Wakanna	3,500	Cont.	Cargo	8-12-18	10-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
480	Dungeness	3,500	Cont.	Cargo	9-18-18	12-21-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

Tacoma Shipbuilding Co., Tacoma, Wash.

543	Beloit	3,500	Cont.	Cargo	5-16-18	9-16-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

Wright Shipyards Co., Tacoma, Wash.

490	Yakima	3,500	Cont.	Cargo	5- 1-18	11-22-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

U.S. Ships Delivered by American Yards

District 11

Wood

Coast Shipbuilding Co., Portland, Oreg.

Hull No.	Name	Dead-weight tonnage	Contract or requisitioned	Type	Date launched	Date delivered	Speed, knots	H. P., shaft or indicated	Length overall, Length between perpendiculars, Beam molded, Depth Molded, feet, inches				Draft, ft. in.
59	Barabos	3,500	Cont.	Cargo	4-29-18	9-12-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
60	Barrington	3,500	Cont.	Cargo	5-16-18	10-23-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

Grant Smith-Porter Ship Co., St. Johns, Oreg.

250	Wasco	3,500	Cont.	Cargo	2-17-18	6-30-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
251	Biloxi	3,500	Cont.	Cargo	2-24-18	6-25-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
252	Kasota	3,500	Cont.	Cargo	3- 6-18	7- 3-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
253	Blandon	3,500	Cont.	Cargo	3-14-18	7-17-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
254	Boilston	3,500	Cont.	Cargo	3-26-18	7-27-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
255	Calusa	3,500	Cont.	Cargo	4- 3-18	8- 7-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
256	Moritz	3,500	Cont.	Cargo	4-11-18	8-12-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
257	Dumaru	3,500	Cont.	Cargo	4-17-18	8-28-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
258	Wakan	3,500	Cont.	Cargo	4-20-18	9- 4-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
259	Caponka	3,500	Cont.	Cargo	4-24-18	9-13-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
260	Kuwa	3,500	Cont.	Cargo	5-15-18	9-21-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
261	Wankan	3,500	Cont.	Cargo	5-25-18	9-30-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
1355	Nashotah	3,500	Cont.	Cargo	7- 6-18	10-14-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
1356	Neeolah	3,500	Cont.	Cargo	7- 4-18	10-23-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
1357	Nupolela	3,500	Cont.	Cargo	8- 7-18	10-31-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
1358	Tillamook	3,500	Cont.	Cargo	7-30-18	11- 8-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

McEachern Ship Co., Astoria, Oreg.

659	Astoria	3,500	Cont.	Cargo	4-24-18	10-10-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6
660	Salmon	3,500	Cont.	Cargo	5-18-18	11- 2-18	10.00	1400 I	286-0	x 274-0	x 45-0	x 28-0	23-6

Peninsula Shipbuilding Co., Portland, Oreg.

36	Anoka	4,000	Cont.	Cargo	4-20-18	10-26-18	12.00	1500 S	287-0	x 269-0	x 48-8	x 27-6	24-0

St. Helens Shipbuilding Co., St. Helens, Oreg.

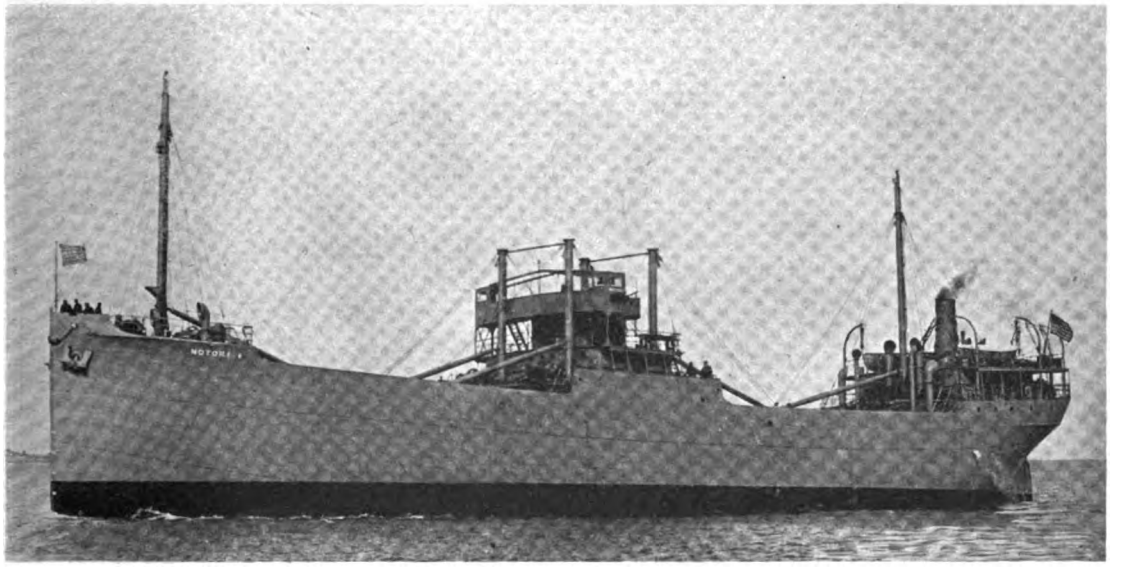
481	Issaquena	3,500	Cont.	Cargo	5- 8-18	12-18-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

Standifer Construction Corp., Portland, Oreg.

19	Belding	3,500	Cont.	Cargo	7-13-18	12-26-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
21	Kineo	3,500	Cont.	Cargo	5-30-18	10-16-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½

Wilson Shipbuilding Co., Astoria, Oreg.

444	Quoque	3,500	Cont.	Cargo	5-18-18	9-21-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½
445	Lonoke	3,500	Cont.	Cargo	6-10-18	10-30-18	10.00	1400 I	281-6	x 268-0	x 45-2	x 26-0	24-0½



MOTORSHIP BUILT BY THE MANITOWOC SHIP BUILDING CO.—FOR THIS TYPE OF CRAFT MANY PREDICT A BRILLIANT FUTURE OWING TO LOW OPERATING COSTS

U. S. Ships Delivered by American Yards

Composite

Supple & Ballin, Portland, Oreg.

Hull No.	Name	Dead-weight tonnage	Contract or requisitioned	Type	Date launched	Date delivered	Speed, knots	H. P., shaft or indicated	Length overall, Length between perpendiculars, Beam molded, Depth Molded, feet, inches				Draft, ft. in.
226	Thala	4,000	Cont.	Cargo	2-21-18	12-13-18	10.50	1500-I	308-0	x 285-0	x 43-0	x 26-0	23-2
227	Wallowa	4,000	Cont.	Cargo	3-18-18	9-28-18	10.50	1500-I	308-0	x 285-0	x 43-0	x 26-0	23-2
228	Calala	4,000	Cont.	Cargo	4-18-18	8-13-18	10.50	1500-I	308-0	x 285-0	x 43-0	x 26-0	23-2
229	Dalana	4,000	Cont.	Cargo	5-18-18	9- 3-18	10.50	1500-I	308-0	x 285-0	x 43-0	x 26-0	23-2
230	Airlie	4,000	Cont.	Cargo	7-16-18	10-22-18	10.50	1500-I	308-0	x 285-0	x 43-0	x 26-0	23-2

Great Lakes District

Steel

American Shipbuilding Co., Cleveland

Buffalo Plant, Buffalo

901	Lake Bledsoe	3,550	Cont.	Cargo	5-18-18	7-30-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
904	Lake Delancey	3,550	Cont.	Cargo	7- 4-18	9-20-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
933	Lake Galera	3,550	Cont.	Cargo	8-17-18	10-22-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
934	Lake Otsquage	3,550	Cont.	Cargo	10- 5-18	11-23-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0

Chicago Plant, Chicago

85	Lake Crescent	3,100	Req.	Cargo	1-31-18	4-19-18	9.50	1250 I	261-0	x 247-2⅜	x 43-6	x 18-8⅜	17-9¼
86	Lake Clear	3,100	Req.	Cargo	2-28-18	5- 6-18	9.50	1250 I	261-0	x 247-2⅜	x 43-6	x 18-8⅜	17-9¼
902	Lake Yemassee	3,550	Cont.	Cargo	4-30-18	7- 6-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
903	Lake Yahara	3,550	Cont.	Cargo	5-28-18	7-29-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
905	Lake Bloomington	3,550	Cont.	Cargo	6-18-18	8-26-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
906	Lake Berdan	3,550	Cont.	Cargo	7- 4-18	9- 9-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
936	Lake Fondulac	3,550	Cont.	Cargo	8-22-18	10-18-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
937	Lake Buckeye	3,550	Cont.	Cargo	7-31-18	9-27-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
938	Lake Beacon	3,550	Cont.	Cargo	9- 2-18	10-25-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
939	Lake Desha	3,550	Cont.	Cargo	9-30-18	11- 4-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
940	Lake Mattato	3,550	Cont.	Cargo	10-19-18	11-15-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1584	Lake Gradan	4,200	Cont.	Cargo	11- 2-18	11-26-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 28-2	23-7
1585	Lake Grafton	4,200	Cont.	Cargo	11-16-18	11-30-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 28-2	23-7

Cleveland Plant, Cleveland

469	Lake Lillian	3,100	Req.	Cargo	11-24-17	1-31-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
470	Lake Otisco	3,100	Req.	Cargo	12-15-17	2-25-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
915	Lake Narka	3,550	Cont.	Cargo	5- 4-18	6-11-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
916	Lake Duncan	3,550	Cont.	Cargo	5-22-18	7- 3-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
917	Lake Blancester	3,550	Cont.	Cargo	6- 8-18	7-31-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
918	Lake Gedney	3,550	Cont.	Cargo	7- 4-18	8-21-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
919	Lake Hewes	3,550	Cont.	Cargo	7-25-18	8-31-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
920	Lake Alvada	3,550	Cont.	Cargo	8-18-18	9-19-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1195	Lake Lemando	3,550	Cont.	Cargo	2-23-18	5-11-18	10.00	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1197	Lake Edon	3,550	Cont.	Cargo	3- 9-18	5-20-18	10.00	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1582	Lake Govan	3,550	Cont.	Cargo	9-14-18	10-13-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1583	Lake Fluvanna	3,550	Cont.	Cargo	9-26-18	10-31-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1611	Lake Farge	4,200	Cont.	Cargo	10-15-18	11-20-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 28-2	23-7

Detroit Plant, Detroit

214	Lake Duane	3,100	Req.	Cargo	11-24-17	2-14-18	9.50	1250 I	261-0	x 251-0	x 43-8	x 18-6	17-9¼
215	Lake Conway	3,100	Req.	Cargo	12-29-17	2-14-18	9.50	1250 I	261-0	x 251-0	x 43-8	x 18-6	17-9¼
216	Lake Butler	3,100	Req.	Cargo	1-19-18	2-27-18	9.50	1250 I	261-0	x 251-0	x 43-8	x 18-6	17-9¼
217	Lake Arthur	3,100	Req.	Cargo	2-16-18	4-30-18	9.50	1250 I	261-0	x 251-0	x 43-10	x 18-6	17-9¼
218	Lake Weston	3,100	Req.	Cargo	3- 2-18	4-30-18	9.50	1250 I	261-0	x 251-0	x 43-10	x 18-6	17-9¼
219	Lake Stirling	3,100	Req.	Cargo	3-30-18	4-30-18	9.50	1250 I	261-0	x 251-0	x 43-10	x 18-6	17-9¼
220	Lake Felicity	3,100	Req.	Cargo	4-20-18	5-20-18	9.50	1250 I	261-0	x 251-0	x 43-8	x 18-6	17-9¼
907	Lake Daraga	3,550	Cont.	Cargo	6-12-18	7- 8-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
908	Lake Damita	3,550	Cont.	Cargo	6-26-18	7-22-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
909	Lake Benbow	3,550	Cont.	Cargo	7- 4-18	7-31-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
910	Lake Gahona	3,550	Cont.	Cargo	7-13-18	8-10-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
911	Lake Ormoc	3,550	Cont.	Cargo	7-25-18	8-22-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
912	Lake Akkra	3,550	Cont.	Cargo	8-10-18	8-31-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
913	Lake Licking	3,550	Cont.	Cargo	8-24-18	9-12-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
914	Lake Ypsilanti	3,550	Cont.	Cargo	8-31-18	9-23-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1191	Lake Ennis	3,550	Cont.	Cargo	4-27-18	5-31-18	10.00	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1192	Lake Largo	3,550	Cont.	Cargo	5-11-18	6-13-18	10.00	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1193	Lake Lasang	3,550	Cont.	Cargo	5-22-18	6-25-18	10.00	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1578	Goodspeed	3,550	Cont.	Cargo	9-14-18	9-30-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1579	Goree	3,550	Cont.	Cargo	9-19-18	10- 9-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1580	Lake Gorin	3,550	Cont.	Cargo	9-26-18	10-16-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1581	Lake Gormania	3,550	Cont.	Cargo	9-30-18	10-24-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1591	Lake Grandon	4,200	Cont.	Cargo	10-23-18	11-11-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 28-2	23-7
1592	Lake Graphite	4,200	Cont.	Cargo	10-29-18	11-21-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 28-2	23-7
1593	Lake Gratis	4,200	Cont.	Cargo	11- 6-18	11-27-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 28-2	23-7
1596	Lake Gravett	4,200	Cont.	Cargo	11-13-18	11-30-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 28-2	23-7

U. S. Ships Delivered by American Yards

Lorain Plant, Lorain, O.

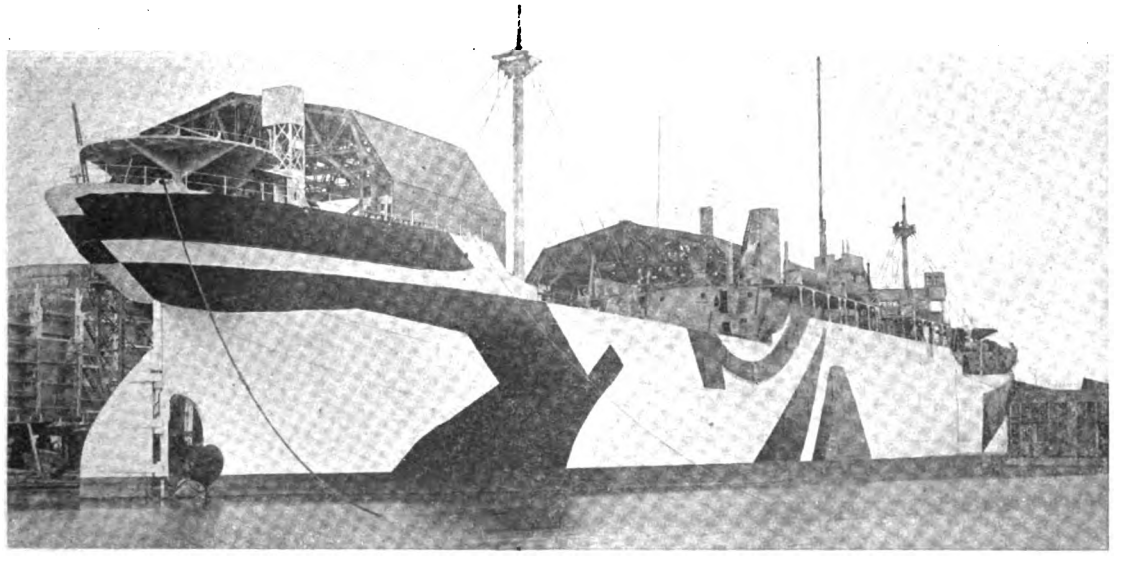
Hull No.	Name	Dead-weight tonnage	Contract or requisitioned	Type	Date launched	Date delivered	Speed, knots	H. P., shaft or indicated	Length overall, Length between perpendiculars, Beam molded, Depth Molded, feet, inches				Draft, ft. in.
725	Lake Como	3,100	Req.	Cargo	12-20-17	4-22-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
726	Lake Charles	3,100	Req.	Cargo	1-14-18	4-23-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
727	Lake Jessup	3,100	Req.	Cargo	2- 2-18	4-29-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
728	Lake Ogden	3,100	Req.	Cargo	2-21-18	4-29-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
729	Lake Benton	3,100	Req.	Cargo	4-20-18	6-10-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
730	Lake Fernwood	3,100	Req.	Cargo	5- 4-18	6-29-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
731	Lake Weir	3,100	Req.	Cargo	4- 6-18	5-29-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
732	Lake Harney	3,100	Req.	Cargo	5-18-18	7-12-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
733	Lake Winico	3,100	Req.	Cargo	6- 1-18	7-25-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
925	Lake Garza	3,550	Cont.	Cargo	7-31-18	9-10-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
926	Lake Gaspar	3,550	Cont.	Cargo	8-22-18	9-28-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
927	Lake Yelverton	3,550	Cont.	Cargo	8-31-18	10- 9-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
928	Lake Zaliski	3,550	Cont.	Cargo	9-12-18	10-16-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
929	Lake Pickaway	3,550	Cont.	Cargo	9-23-18	10-26-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
930	Lake Copley	3,550	Cont.	Cargo	9-30-18	11- 2-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
931	Lake Deval	3,550	Cont.	Cargo	8- 8-18	9-21-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
932	Lake Caboon	3,550	Cont.	Cargo	10- 9-18	11-15-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1198	Lake Eckhart	3,550	Cont.	Cargo	6-25-18	8- 8-18	10.00	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1199	Lake Eliko	3,550	Cont.	Cargo	7- 4-18	8-22-18	10.00	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1200	Lake Elsinore	3,550	Cont.	Cargo	7-20-18	8-31-18	10.00	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1623	Lake Frampton	4,200	Cont.	Cargo	10-21-18	11-30-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 28-2	23-7

Superior Plant, Superior, Wis.

530	Lake Tulare	3,100	Req.	Cargo	12-15-17	4-29-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
531	Lake Capens	3,100	Req.	Cargo	1-19-18	5-20-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-9¼
921	Lake Dymer	3,550	Cont.	Cargo	6-22-18	8-26-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
922	Lake Dancey	3,550	Cont.	Cargo	7-27-18	9-30-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
923	Lake Agomak	3,550	Cont.	Cargo	8-17-18	10-22-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
924	Lake Aurice	3,550	Cont.	Cargo	7- 4-18	9-14-18	10.00	1250-I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1194	Lake Ledan	3,550	Cont.	Cargo	4-30-18	7- 2-18	10.00	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1196	Lake Lesa	3,550	Cont.	Cargo	5-21-18	7-31-18	10.00	12-1300 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1617	Lake Fostoria	4,200	Cont.	Cargo	10-12-18	11-21-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 28-2	23-7
1618	Lake Fouche	4,200	Cont.	Cargo	10-22-18	11-30-18	9.50	12-1300 I	261-0	x 251-0	x 43-6	x 28-2	23-7

Globe Shipbuilding Co., Superior, Wis.

101	Lake Washburn	3,500	Req.	Cargo	4-13-18	6-28-18	10.00	1250 I	261-0	x 251-0	x 43-8⅜	x 19-2⅜	18-9½
102	Lake Borgne	3,500	Req.	Cargo	7- 4-18	8-17-18	10.00	1250 I	261-0	x 251-0	x 43-6	x 21-3	18-9½
103	Lake Medford	3,500	Req.	Cargo	8-10-18	9-23-18	10.00	1250 I	261-0	x 251-0	x 43-6	x 21-3	18-9½
104	Lake Arline	3,500	Req.	Cargo	8-29-18	10-18-18	10.00	1200 I	261-0	x 251-0	x 43-6	x 21-0	18-9½
1225	Lake Contoocook	3,500	Cont.	Cargo	10-19-18	11-23-18	10.00	1250 I	261-0	x 251-0	x 43-6	x 24-2½	21-0



ALL READY FOR OVERSEAS TRAFFIC—STEEL CARGO CARRIER BUILT BY PUSEY & JONES CO.—LARGE GUN PLATFORMS ARE INSTALLED AT EACH END

U.S. Ships Delivered by American Yards

Great Lakes Engineering Works, Detroit
Ashtabula Plant, Ashtabula, O.

Hull No.	Name	Dead-weight tonnage	Contract or requisitioned	Type	Date launched	Date delivered	Speed, knots	H. P., shaft or indicated	Length overall, Beam molded,	Length between perpendiculars, Depth Molded, feet, inches			Draft, ft. in.
178	Lake St. Regis	3,300	Req.	Cargo	12-20-17	4-30-18	9.50	1550 I	261-0	x 253-6	x 43-6	x 22-6	19-11½
180	Lake Maurepas	3,300	Req.	Cargo	2- 2-18	5-16-18	9.50	1550 I	261-0	x 253-6	x 43-6	x 22-6	19-9
181	Lake Louise	3,300	Req.	Cargo	3- 9-18	6-10-18	9.50	1550 I	261-0	x 253-6	x 43-6	x 22-6	19-9
186	Lake Charlotte	3,300	Req.	Cargo	4-20-18	6-29-18	9.50	1550 I	261-0	x 253-6	x 43-6	x 22-6	19-9
188	Lake Harris	3,300	Req.	Cargo	5-27-18	7-29-18	9.50	1550 I	261-0	x 253-0	x 43-6	x 22-6	19-9
191	Lake Pleasant	3,300	Req.	Cargo	7- 4-18	8-24-18	10.00	1550 I	261-0	x 253-6	x 43-6	x 22-6	18-9
195	Lake Marion	3,300	Req.	Cargo	7-30-18	9-26-18	9.50	1250 I	261-0	x 253-6	x 43-6	x 22-6	19-6
198	Lake Sanford	3,300	Req.	Cargo	8-24-18	10-17-18	9.50	1250 I	261-0	x 253-6	x 43-6	x 22-6	19-6
1280	Lake Connersville	3,350	Cont.	Cargo	9-14-18	11- 9-18	9.50	1250 I	261-0	x 253-6	x 43-6	x 22-6	19-6
1283	Lake Crathorne	3,350	Cont.	Cargo	10- 7-18	11-23-18	9.50	1250 I	261-0	x 253-6	x 43-6	x 22-6	19-6

Ecorse Plant, Ecorse, Mich.

176	Lake Elizabeth	3,400	Req.	Cargo	12-12-17	4-30-18	8.50	1250 I	261-6	x 253-6	x 43-10	x 20-5	19-11½
177	Lake St. Clair	3,300	Req.	Cargo	12-12-17	4-30-18	9.50	1550 I	261-0	x 253-6	x 43-10	x 20-5	19-11½
179	Lake Houghton	3,300	Req.	Cargo	1-10-18	4-30-18	9.50	1550 I	261-0	x 253-6	x 43-10	x 20-5	19-11½
182	Lake Owens	3,300	Req.	Cargo	2-16-18	5-10-18	9.50	1550 I	261-0	x 253-6	x 43-10	x 20-5	19-11½
183	Lake Winona	3,300	Req.	Cargo	2-16-18	5- 6-18	9.50	1550 I	261-0	x 253-6	x 43-10	x 20-5	19-11½
184	Lake Crystal	3,300	Req.	Cargo	3-21-18	5-15-18	9.50	1550 I	261-0	x 253-6	x 43-10	x 20-5	19-8
185	Lake Allen	3,300	Req.	Cargo	4- 4-18	5-20-18	9.50	1550 I	261-0	x 253-6	x 43-10	x 20-5	19-8
187	Lake Hemlock	3,300	Req.	Cargo	4-20-18	5-31-18	9.50	1550 I	261-0	x 253-6	x 43-10	x 20-5	19-9½
189	Lakehurst	3,300	Req.	Cargo	5- 9-18	6-12-18	9.50	1550 I	261-0	x 253-6	x 43-10	x 20-5	19-9½
190	Lake Mary	3,300	Req.	Cargo	5-22-18	6-22-18	9.50	1550 I	261-0	x 253-6	x 43-10	x 20-5	19-9½
192	Lake Conesus	3,300	Req.	Cargo	6-13-18	6-30-18	9.50	1550 I	261-0	x 253-6	x 43-10	x 20-5	19-9
193	Lake Silver	3,300	Req.	Cargo	7- 4-18	7-31-18	9.50	1550 I	261-0	x 253-6	x 43-10	x 20-5	19-9½
194	Lake Janet	3,300	Req.	Cargo	7- 4-18	8- 7-18	8.50	1250 I	261-0	x 253-6	x 43-10	x 20-5	19-7¾
196	Lake Pearl	3,300	Req.	Cargo	7- 4-18	8-24-18	9.50	1250 I	261-0	x 253-0	x 43-6	x 22-6	19-6
197	Lake Gardner	3,300	Req.	Cargo	8- 3-18	8-31-18	12.20	1250 I	261-0	x 253-6	x 43-10	x 20-5	19-6
199	Lakeville	3,300	Req.	Cargo	8-24-18	9-16-18	9.50	1250 I	261-0	x 253-6	x 43-6	x 22-6	19-6
1256	Lake Corydon	4,200	Cont.	Cargo	10-22-18	11-20-18	9.50	1350 I	261-0	x 253-0	x 43-6	x 27-6	23-7
1257	Lake Costello	4,200	Cont.	Cargo	10-17-18	11-11-18	9.50	1350 I	261-0	x 253-0	x 43-6	x 27-6	23-7
1258	Lake Cote Blanche	4,200	Cont.	Cargo	11- 7-18	11-29-18	9.50	1350 I	261-0	x 253-0	x 43-6	x 27-6	23-7
1259	Lake Cotopaxi	4,200	Cont.	Cargo	11-15-18	11-30-18	9.50	1350 I	261-0	x 253-0	x 43-6	x 27-6	23-7
1281	Craincreek	3,350	Cont.	Cargo	9-10-18	9-30-18	9.50	1250 I	261-0	x 253-6	x 43-6	x 22-6	19-6
1282	Cranenest	3,350	Cont.	Cargo	9-21-18	10- 8-18	9.50	1250 I	261-0	x 253-6	x 43-6	x 22-6	19-6
1284	Crawl Keys	3,350	Cont.	Cargo	7-27-18	8-14-18	9.50	1250 I	261-0	x 253-6	x 43-6	x 22-6	19-6
1285	Craycroft	3,350	Cont.	Cargo	9-26-18	10-21-18	9.50	1250 I	261-0	x 253-6	x 43-6	x 22-6	19-6

McDougall-Duluth Co., Duluth

3	Lake Traverse	3,300	Req.	Cargo	10-27-17	4-30-18	10.00	1250 I	261-0	x 250-0	x 43-7⅛	x 18-1⅛	17-8
4	Lake Portage	3,100	Req.	Cargo	2-25-18	6-12-18	10.00	1250 I	261-0	x 251-0	x 43-7⅛	x 18-1⅛	17-8
5	Lake Markham	3,100	Req.	Cargo	3-11-18	7-16-18	10.00	1250 I	261-0	x 251-0	x 43-6	x 20-0	17-11
6	Lake Pepin	3,100	Req.	Cargo	3-30-18	8-22-18	10.00	1200 I	261-0	x 251-0	x 43-6	x 20-0	17-11
7	Lake Geneva	3,100	Req.	Cargo	6-22-18	8-31-18	10.00	1200 I	261-0	x 251-0	x 43-6	x 20-0	17-11
8	Lake Helen	3,100	Req.	Cargo	7- 4-18	9-18-18	10.00	1200 I	261-0	x 251-0	x 43-6	x 20-0	17-8½
9	Lake Indian	3,100	Req.	Cargo	7-20-18	9-30-18	10.00	1200 I	261-0	x 251-0	x 43-6	x 20-0	17-8½
10	Lake Orange	3,100	Req.	Cargo	7-31-18	10-29-18	10.00	1200 I	261-0	x 251-0	x 43-6	x 20-0	17-8½
1327	Cedar Spring	3,500	Cont.	Cargo	10- 9-18	11-29-18	10.00	1200 I	261-0	x 251-0	x 43-6	x 24-2½	21-0

Manitowoc Shipbuilding Co., Manitowoc, Wis.

86	Lake Pewaukee	3,500	Req.	Cargo	2-20-18	4-30-18	10.00	1250 I	261-0	x 250-6	x 43-8⅜	x 20-5	19-11¼
87	Lake Shawano	3,500	Req.	Cargo	3-27-18	5-16-18	10.00	1250 I	261-0	x 250-6	x 43-8⅜	x 20-5	19-11¼
88	Lake Lida	3,500	Req.	Cargo	4- 4-18	5-25-18	10.00	1250 I	261-0	x 250-6	x 43-8⅜	x 20-5	19-11¼
90	Lake Monroe	3,400	Req.	Cargo	6-19-18	8-10-18	10.00	1550 I	261-0	x 250-6	x 43-8⅜	x 20-5	19-11¼
91	Lake Greenwood	3,400	Req.	Cargo	5-28-18	7-24-18	10.00	1550 I	261-0	x 250-6	x 43-8⅜	x 20-5	19-11¼
92	Lake Annette	3,500	Req.	Cargo	4-30-18	6-13-18	10.00	1250 I	261-0	x 250-6	x 43-8⅜	x 20-5	19-11¼
93	Lake Linden	3,400	Req.	Cargo	7-24-18	8-31-18	10.00	1550 I	261-0	x 251-0	x 43-6	x 23-0	19-11¼
94	Lake Winthrop	3,400	Req.	Cargo	7- 4-18	8-26-18	10.00	1550 I	261-0	x 251-0	x 43-6	x 23-0	19-11¼
95	Lake Wilson	3,400	Req.	Cargo	8-26-18	9-28-18	10.00	1550 I	261-0	x 251-0	x 43-6	x 23-0	19-11¼
1310	Lake Kyttle	3,400	Cont.	Cargo	9- 4-18	10-31-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 23-0	19-10
1311	Lake Corrales	3,400	Cont.	Cargo	9-18-18	11-20-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 23-0	19-10
1312	Corsicana	3,400	Cont.	Cargo	8- 7-18	10-19-18	9.50	1250 I	261-0	x 251-0	x 43-6	x 23-0	19-10

Saginaw Shipbuilding Co., Saginaw, Mich.

409	Lake Pachuta	3,500	Cont.	Cargo	6-22-18	8-28-18	10.00	1400 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
410	Lake Osweya	3,500	Cont.	Cargo	7-20-18	9-26-18	10.00	1400 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
411	Lake Winooski	3,500	Cont.	Cargo	9-11-18	11- 7-18	10.00	1400 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
412	Lake Belnona	3,500	Cont.	Cargo	10-19-18	11-29-18	10.00	1400 I	261-0	x 251-0	x 43-6	x 24-2½	21-0

Toledo Shipbuilding Co., Toledo, O.

143	Lake Sunapee	2,930	Req.	Cargo	12-28-17	4-30-18	10.00	1250 I	261-0	x 252-0	x 43-6	x 21-0	18-6½
144	Lake Sebago	2,930	Req.	Cargo	3-23-18	5-25-18	10.00	1250 I	261-0	x 252-0	x 43-6	x 21-0	18-6½
145	Lake Cayuga	2,930	Req.	Cargo	4- 6-18	6- 6-18	10.00	1250 I	261-0	x 252-0	x 43-6	x 21-0	18-9½
146	Lake Chelan	2,930	Req.	Cargo	4-27-18	6-21-18	10.00	1250 I	261-0	x 252-0	x 43-6	x 21-0	18-9½
147	Lake Catherine	2,930	Req.	Cargo	5-25-18	7- 6-18	10.00	1300 I	261-0	x 252-0	x 43-6	x 21-0	18-6½
148	J. W. McGrath	2,930	Req.	Cargo	6-15-18	7-20-18	10.00	1250 I	261-0	x 252-0	x 43-6	x 21-0	18-6½
1099	Calaveras	3,500	Cont.	Cargo	8- 3-18	9-30-18	9.50	1200 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1100	Calicorock	3,500	Cont.	Cargo	8-31-18	10-18-18	9.50	1200 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1101	Calispell	3,500	Cont.	Cargo	9-28-18	10-31-18	9.50	1200 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1102	Lake Calistoga	3,500	Cont.	Cargo	10-19-18	11-16-18	9.50	1200 I	261-0	x 251-0	x 43-6	x 24-2½	21-0
1103	Lake Callicoon	3,500	Cont.	Cargo	10-31-18	11-23-18	9.50	1200 I	261-0	x 251-0	x 43-6	x 24-2½	21-0

Wood

Lake & Ocean Navigation Co., Sturgeon Bay, Wis.

191	Sturgeon Bay	2,500	Cont.	Cargo	4-25-18	11-23-18	10.00	....	261-0	x 245-0	x 42-0	x 24-0	..-..

Equipment Used Afloat and Ashore

Surface Condenser—Marine Boilers—Plugs for Marine Use

THE Kerr Machinery Corp., Detroit, has absorbed the Marine Equipment Co., Detroit, manufacturer of propellers, cargo winches and manifolds, etc. The Kerr Machinery Corp. has also taken over the marine sales department of the Refrigeration Engineering Co., Toledo, O.

David M. Kerr has for many years handled the marine products of the Union Steam Pump Co., Battle Creek, Mich., manufacturer of surface condensers and marine pumping equipment. For the past two years practically its entire capacity has been devoted to marine production. He also handles the marine feed water heaters and condensers manufactured by the Sims Co., Erie, Pa. Other lines include products of the Kingsford Foundry & Machine Co., Oswego, N. Y., manufacturer of Scotch boilers and engine-driven circulating pumps, and of Rowe & Davis, New York, manufacturer of evaporators, distillers and oil coolers.

In addition to the lines for which David M. Kerr is selling agent, the Kerr Machinery Corp. has manufactured a great deal of marine equipment in its own factories. Cargo winches, deck pumps, manifolds, valves and fittings and other items have been turned out during the past year. It is said that as nearly as can be estimated, every boat that left the Great Lakes district for war service last year, carried more or less of the company's equipment. The steel shell condenser illustrated, is one item.

When 1918 closed, the Kerr Machinery Corp. had sufficient orders for the equipment it manufactures to keep most of its plants busy for about 15 months. At that time, however, it secured additional factory facilities which placed it in a position to handle some new business.

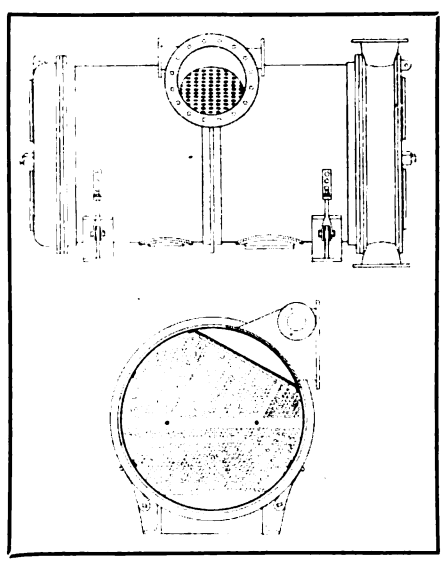
During 1918, this company sustained a great loss through the death of its president, A. M. Kerr, who for 50 years has been one of the best known machinery builders in the central west. He was succeeded in the presidency by his son, David M. Kerr, who had for several years been the active head of the company.

The Wellman-Seaver-Morgan Co., Cleveland, has opened a San Francisco office at 415-17 Rialto building, in charge of Norman S. Ross. Business originating from California, Nevada west of the 115th meridian, lower California and the counties of Josephine, Jackson and Klamath in Oregon will be handled through this office.

Passes Million Mark

The Penberthy Injector Co., Detroit, durings its 33 years of constant production, has made over one million injectors for various kinds of steam boiler installations. This means that the average production for 33 years has been at the rate of approximately 3000 injectors a month. About 3000 tons of copper were melted to make these appliances which are capable of feeding 50,000,000 boiler horsepower.

The company started to manufacture injectors in Detroit in the year 1886 in a plant consisting of one room of about



STEEL SHELL SURFACE CONDENSER

144 square feet floor space. The machine tool equipment at that time consisted of one engine lathe. The company's present plant is devoted to a variety of brass specialties and comprises a floor space of 2½ acres.

Building Marine Structures

"The Value of a Complete Organization" is the title of a booklet recently issued by the Watson Engineering Co., Cleveland. The growth of the company's organization is briefly described and attention is called to the fact that the company is in a position to plan, design and construct bridges, warehouses, factories, commercial buildings, marine structures, etc. A brief biographical history of each member of the company's staff is given together with a list of some of the undertakings completed. Among the marine work is included the sea wall at Jacksonville, Fla.; docks at Jacksonville, Fla.; Michigan Central railroad dock, Detroit; dock for Eastern Coal Dock Co., South Amboy, N. J.; ore dock for McKinney Steel Co., Cleveland; shipyard ways and docks for the Liberty Shipbuilding company, Cleveland; various designs of docks and floating equipment for the Great Lakes Dredge & Dock Co., at different Great Lakes' ports and plans for floating equipment for the Central Dredge Co., Cleveland.

Welding and Cutting

"Oxwelding and Cutting" is the title of a manual of instruction recently issued by the Oxweld Acetylene Co. The forepart of the book is devoted to definitions of terms pertaining to welding, followed by a description of autogenous welding. Under the heading of oxy-acetylene process much valuable information and many historic facts are given.

The book describes the subject of welding in a thorough manner and gives many interesting examples taken from practical work. These are illustrated and graphically describe just how the workman should proceed to make good welds under various conditions. The various metals that can be effectively welded are described and the subjects of after treatment and sources of trouble are treated fully.

The apparatus used, including acetylene generators, regulators and blowpipes, is fully described. Another interesting feature of the manual is the number of repair jobs illustrated. These include such work as broken cylinders, crankshafts, cylinder heads, gears, pulleys, etc.

Life Preserver Suit

"Safety at Sea" is the title of a pamphlet recently issued by the Life Preserver Suit Co., Inc., New York, and devoted to a safety suit in which no metal is employed. It is pointed out that the suit completely covers the person, the hands being left free. The garment is made watertight at the wrists by means of bands and the feet of the suit are weighted with lead with the object of keeping the wearer in an upright position while in the water.

The wearer gets into the suit through an opening in the top, which consists of flexible, rubberized material that is readily rolled up and fastened by an ordinary buckle. The portion that covers the neck fits snugly to keep water out.

It is pointed out that the suit keeps the wearer in an upright position with his head well out of the water. For this reason, even if partially overcome by cold, the wearer cannot pitch forward and drown.

Another lifesaving appliance described in the pamphlet is a life preserving jacket. This device resembles a vest and receives its buoyancy from a material called kapok which is a silky fiber growing in the East Indies. The garment is fastened at the front by means of tie straps and the portion that envelops the neck comes up to the wearer's ears. The object of this design is to keep the wearer's head out of the water. The jacket is provided with straps at the back to make it fit snugly. This prevents rough water from forcing it over the wearer's head.

Equipment Firms Merge

The business of the Welin Marine Equipment Co. and the American Balsa Corp. has been taken over by the American Balsa Co., Inc., which was lately organized for this purpose with a capital stock of $1,000,000.

The officers of the company are: George S. Lewis, president; A. P. Lundin, William Finlay Morgan and R. B. Sheridan, vice presidents; Cecil Page, secretary; and Percy Mayes, treasurer. The directors are: A. P. Lundin, chairman; R. C. Carpenter, J. F. Case, George S. Lewis, George Mixter, William Finlay Morgan, R. B. Sheridan, C. C. Stillman and Beekman Winthrop.

The company owns patents on the use of balsa wood, a material growing mainly in Costa Rica and Panama, for insulating purposes in cold storage and refrigeration. This wood is extremely light, its specific gravity being one-third less than that of cork.

At the present time the American Balsa Co. is operating plants at Long Island City, Astoria, L. I.; New York City and at Delawanna, N. J. Practically the entire output of the company is being used by the United States navy, the United States army transport service and the Emergency Fleet corporation.

The principal products manufactured by the company are davits, lifeboats, buoys, balsa wood for airplane and hydroplane construction, life rafts and life preservers. The company's main office is in New York.

Standard Boilers for Wood Ships

Wooden ships built for the Emergency Fleet corporation are equipped with standard watertube boilers. The first boiler of this type was completed by the De Pere Mfg. Co., Chicago, at its West De Pere, Wis., shops. The boiler was built after designs furnished by the shipping board. To assure an adequate supply of boilers for its wooden ships, the Emergency Fleet corporation some time ago placed orders for this equipment with 18 different boiler manufacturers.

Work on turning out the boilers was handicapped through the fact that material such as plates, staybolts, furnaces, heads, etc., was difficult to

WATERTUBE BOILER FOR WOOD SHIPS

secure. Notwithstanding this fact the De Pere company succeeded in completing the first boiler to pass final tests, in a short time.

Rapid Construction

The engineering and construction service rendered by the Gaylord W. Feaga Co., Cleveland, is described in a handsome 24-page catalog recently issued by this company. In the erection of industrial buildings speed is an essential factor and it is pointed out that the Feaga company, within 15 days after it had received the order, planned and built complete for the Willard Storage Battery Co., Cleveland, a brick, trussed roof and glass structure, 90 x 202 feet, of special truss design with two monitors. Since the builders were handicapped by the severity of winter, all the operations were carried on under a large tent. Another record also was established at this plant on a reinforced concrete structure, 222 x 134 feet, the first story having been of flat slab construction and the second story the same kind of construction as the 15-day building, except that it was provided with three monitors. This entire structural building was erected in 45 days. Interesting views of numerous industrial buildings of standardized design are included.

Small Tools

The Greenfield Tap & Die Corp., Greenfield, Mass., has issued a catalog describing its various products which include taps and dies for various thread-cutting operations, screw plates, tap wrenches, reamers and countersinks. The catalog is well illustrated and full descriptions are given of each article listed.

A glossary of terms used in connection with screw cutting and thread measuring is also included, together with several tables. These comprise United States standard threads, tap drill sizes, S. A. E. standard threads, Whitworth standard threads, V threads, A. S. M. E. threads, British standard fine threads, British association threads, straight pipe threads, Briggs standard pipe threads, drill sizes for pipe taps, metric screw threads, acme standard threads, table of decimal equivalents of fractional parts of an inch, allowances for fits, systems for measuring threads, etc.

The descriptions given under the various heads are concise and contain much information arranged for quick reference.

Plugs for Marine Use

Receptacles and plugs adapted for marine use are being manufactured by the Bryant Electric Co., Bridgeport, Conn. They are of service where extension cord outlets are desired in officers' quarters, mess rooms, cabins and staterooms. These receptacles fit the plugs which are furnished with every fan motor, practically all table lamps and other current consuming devices.

The base of the plug receptacle is unbreakable composition, while the top section is hard white porcelain, glazed. This receptacle has a bottom diameter of 1¼ inches; a top diameter of 1⅜ inches, while the height is 1 13/16 inch. A groove is provided in the base for wires to pass through or to allow wire entrance from the bottom of the box. Screw centers are 1⅜ inches.

The Atlas-Imperial Gas Engine Co. has begun construction work on its new plant at Oakland, Cal. The plant is to be located on the Oakland inner harbor and its cost will be close to $1,000,000. The entire plant is to be devoted to the manufacture of diesel engines. These may be used on concrete ships being built at an adjacent plant. A. Warrenskjold is president.